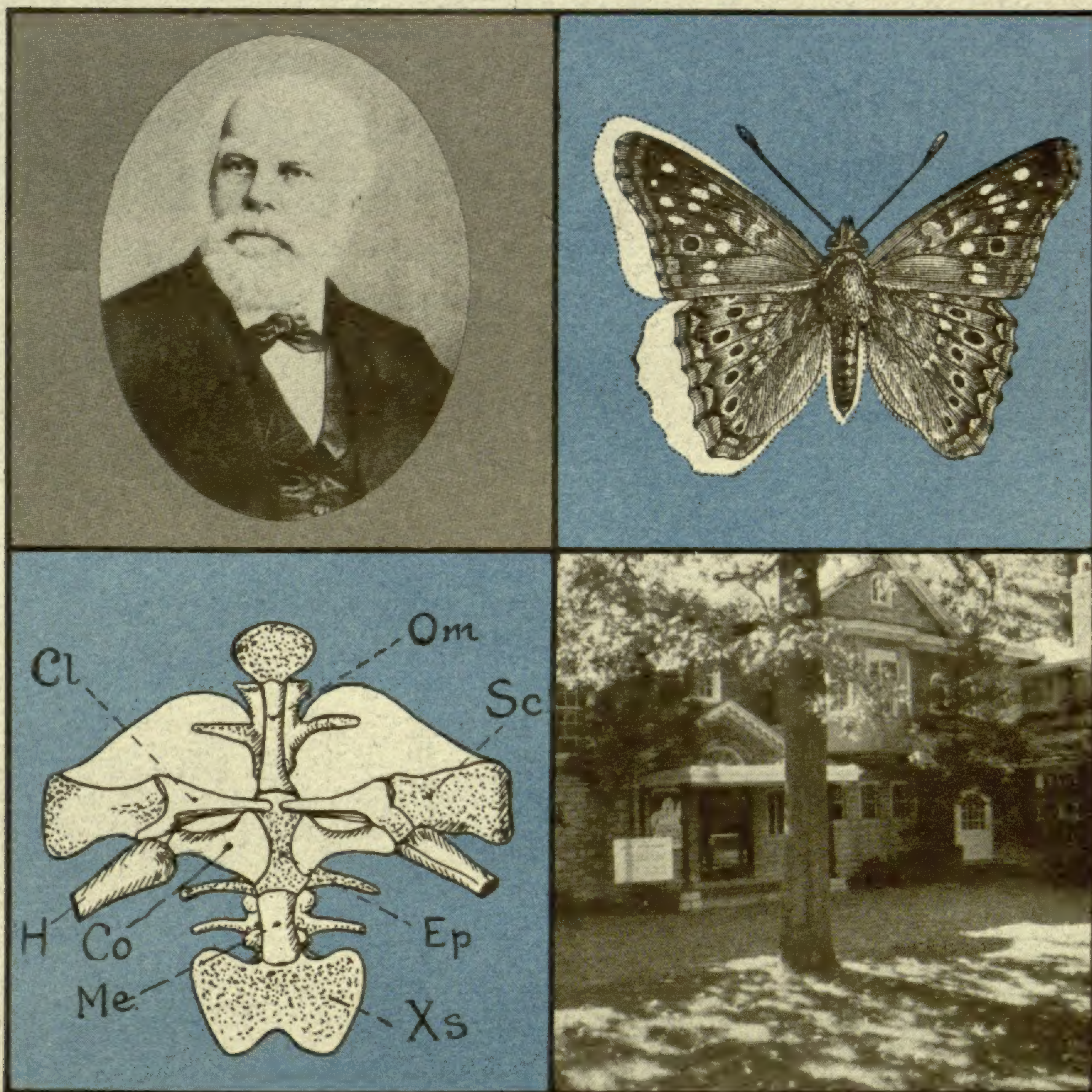


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The Academy of Science of St. Louis

• 1856 – 1988 •



By John R. Hensley

Transactions of the Academy of Science of St. Louis

Volume 33, No. 1

George Engelmann, Founder of the Academy of Science of St. Louis

"The Lycaon Butterfly" — Illustration for Charles V. Riley's "Hackberry Butterflies"

*"Ventral View of Shoulder Girdle of **Rana catesbiana**" — Illustration for Julius Hurter's "Herpetology of Missouri"*

The Museum of Science and Natural History at Oak Knoll Park

The Academy of Science of St. Louis: 1856 — 1988



**John R. Hensley
Technology and Humanities Curator
St. Louis Science Center**

**With an Introduction by
Jules D. Campbell
President, Academy of Science of St. Louis**

**Transactions of the Academy
of Science of St. Louis
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1988**

MISSOURI BOTANICAL

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John R. Hensley
August 8, 1988

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Introduction

The Academy of Science of St. Louis traces its origin to 1836, with the formation of the Western Academy of Natural Sciences of St. Louis, whose goals were to improve the cultural standards of the city and to aid in the exploration and exploitation of the West. Although this first institution for the advancement of science west of the Mississippi was founded by learned men of the highest order, the Western Academy lapsed after only seven years because of funding problems. However, in those few years, it established a firm foundation of precedents upon which the Academy of Science of St. Louis was built thirteen years later. The Western Academy's legacy was great: the new organization inherited not only its library and museum collections, but also its goal of encouraging the growth of science on the frontier and its application to the needs of society.

Over the years, through many vicissitudes and trials and tribulations, the Academy pursued its goals by adding to its library and museum collections, by sponsoring lectures on learned subjects, and by the publication of **Transactions**.

With the establishment of the Museum of Science and Natural History in the late 1950s, one of the Academy's foundation goals finally came to fruition. The merger of the Museum and the McDonnell Planetarium to form the St. Louis Science Center, under its own administration and partly tax-supported, freed the Academy to concentrate on some of its other goals, including the promotion of public understanding and appreciation of science and technology, the encouragement of education in science and its related disciplines, and the fostering of collaboration—in a recreational atmosphere—among learned individuals who share similar goals. To these ends the Academy now is devoting its resources.

Over the years, several short histories of the St. Louis Academy of Science have been published. This publication, however, is the first comprehensive, fully documented narrative of the organization's rich and fruitful past.

Jules D. Campbell
President, Academy
of Science of St. Louis

Part I. A False Start — The Western Academy Of Natural Sciences Of St. Louis, 1836-1843

St. Louis in the 1830s and 1840s grew from a frontier settlement into a bustling town well on its way to becoming a major American city. Ideally located for the distribution of manufactured goods to the developing hinterlands of the Midwest and for the transshipment of furs, ore, and produce to the East, St. Louis became a boomtown. Its wealth and population rapidly expanded, and the town reaped both the rewards and the penalties of incipient urbanization. Its prosperity, epitomized by frenetic steamboat traffic on the river and by the commodities piled high on the levee, was easy to see. But the town's ailments were just as obvious: rampant disease, frequent fires, shortages of housing and drinking water, streets made impassable by mud and overcrowding, creeping sandbars that threatened to choke the river harbor, and insufficient drainage that created slime-covered pools in the numerous garbage-choked sinkholes around town.

To visitors and immigrants from the East and abroad, St. Louis appeared raw and uncouth. The drovers, rivermen, and trappers who came to town seemed inordinately predisposed to drunkenness, brawling and gambling—even by frontier standards. These vices extended also to St. Louis' more settled and respectable residents, many of whom, for example, frequently rowed to "Bloody Island," a sandbar in the middle of the Mississippi River, to settle questions of honor with a brace of pistols.¹

Although St. Louis deserved its rough-and-ready reputation, the youthful city showed signs of becoming a center for education and the arts and sciences in the expanding Midwest. Science gained a foothold on the western bank of the Mississippi in 1836 when a group of amateur scientists, most of them recent arrivals from the East and foreign countries, established a private society for the advancement of science on what one of them termed "the verge of civilization."² They christened the infant organization the "St. Louis Association of Natural Sciences" but soon changed the name to "Western Academy of Natural Sciences of St. Louis." This was the forerunner of the Academy of Science of St. Louis.

The group that founded the Western Academy of Natural Sciences consisted of seventeen learned St. Louis men. Seven had medical degrees or practiced medicine. Benjamin Boyer Brown, C.J. Carpenter, George Engelmann, F. Johnson, Henry King, Phillip A.M. Pulte, and G.A.V.

Reed all had practices or taught in St. Louis. That so many medical men helped establish the Western Academy of Natural Sciences of St. Louis was not coincidental. A close association existed between members of the medical profession and most natural history societies and academies of science. Physicians of the era studied chemistry, mineralogy, and other sciences along with anatomy and *materia medica*, thus making them *de facto* natural scientists. Furthermore, most individuals who went into medicine were intelligent and inquisitive and often extended their studies into fields such as the study of plants that related to the medicine of the time.

Intelligence and curiosity about the natural world was not confined to the medical profession, as the remaining names on the list of founders of the Western Academy illustrate: Theodore Engelmann, a teacher; William G. Eliot, minister of the First Congregational Church; Karl A. Geyer, a botanical collector; David W. Gobel, a professor of mathematics; Edward Harren, a businessman; Marie P. Leduc, a judge of the county court; and William Weber, a publisher. The other founders, whose vocations are not noted in the record, were G. Scheutze, Jasper Meyer, and M. Thomas. Friedreich Wislizenus, a physician; D.A.H. Armstrong, a school teacher; and W.R. Singleton and C.M. Sell, occupations unknown, joined the organization soon after its creation.

The founders of the Western Academy wrote a constitution and by-laws similar to those of established science groups in the East, such as the Academy of Natural Sciences of Philadelphia, which they strove to emulate in order to improve the cultural standards of their town and region. The constitution called for the usual roster of officers—president, vice-president, corresponding secretary, treasurer, and librarian. The organization was to meet semi-monthly and hold an annual meeting at which officers would give reports. The founders established four categories of membership: active, associate, corresponding, and honorary. Active members gained admission if they could demonstrate a familiarity with one or more branches of the natural sciences. Associate members attained that rank simply by paying dues: the Academy did not require them to prove profound knowledge of science. Corresponding members were nonresidents who had distinguished themselves as scientists. The Academy conferred honorary memberships on persons of “sufficient scientific or literary attainment.” Each active member served on one or more of the Academy’s “departments” for zoology, botany, meteorology, natural philosophy, and mineralogy and chemistry.³

In addition to striving for improved cultural standards for their town, the organizers of the Western Academy acted out of genuine intellectual curiosity and the expectation of making significant contributions

to natural science. As men of education and culture steeped in the Baconian tradition of observing and analyzing nature, they felt a keen desire to explore the unknown lands on their doorsteps, perhaps making exciting new finds that would secure their reputations. Moreover, as members of a scientific community that extended from Europe to all parts of the globe, they viewed such work as their duty.

Western Academy members were also motivated by patriotism and a sense of the Midwest's economic potential. They wanted to promote immigration to Missouri by increasing and disseminating knowledge of the region's fertility and favorable climate. A larger population would enhance Missouri's economy and, concurrently, further the broader national aim of extending American institutions and influence west of the Mississippi. Similarly, the Western Academy intended to promote settlement and economic growth by discovering exploitable mineral deposits and distributing published descriptions, which would entice entrepreneurs to develop what was discovered.

Finding and developing local sources of iron, coal, lead, clay, sand, stone, and gravel were deemed essential to extending industry and providing homes, stores, and other structures for the Midwest's swelling population. The St. Louis science group began its work of helping to discover mineral resources as soon as it was formed by taking out a newspaper notice to inform interested parties that its chemical and mineralogical department would analyze all minerals sent to it. How much the members learned about the natural wealth of their region as a result of its newspaper message is difficult to measure. Nevertheless, this part of the association's mission was at least partially attained when some of its members found and described a three-foot vein of good quality anthracite coal in Missouri's Iron Mountain district.⁴

All of the mineralogical specimens gathered by the members were placed in the Western Academy's museum, located upstairs in a building at the northeast corner of Fourth and Chestnut streets. Many other kinds of natural history specimens were brought in by members as well. For example, George Engelmann gave his herbarium, mineralogical specimens, and bird and animal skins; Henry King donated his entire collection of rocks and minerals; and Benjamin Brown contributed numerous zoological specimens.

Others also gave to the Western Academy's museum. Chief among the donors was Merriwether Lewis Clark, son of William Clark, who deposited some of his famous father's "scientific collection."⁵ Other prominent citizens, such as Ed Charles, John O'Fallon, and William Stewart, contributed fossils and natural history specimens collected in the Far West; Dr. A. Reavy of Illinois supplied the Western Academy with a collection of European bird skins; and other individuals presented

their collections of skins, plants, and geological and mineralogical specimens.⁶

These specimens and objects were received, identified, and arranged by the Western Academy's different departments for display. The museum was open to the public, but how many non-members visited the museum is uncertain. The members enjoyed working with their collections at the little museum and no doubt appreciated having a place to take visiting scientists and friends.

In addition to its museum, the Western Academy attempted unsuccessfully to establish a botanical garden. To this end, members purchased a small plot of land at Eighth and Chouteau— then on the outer limits of the town. The botanical garden seemed doomed from the start. The members failed to get the land cleared and fenced in time for planting for at least two years after buying it, and later attempts were half-hearted.⁷ Ultimately, the garden was abandoned.

The troubles the Western Academy faced initiating a botanical garden mostly stemmed from a shortage of funds. From its inception, the organization relied on dues and donations from its active members for all of its activities, even though it continually attempted to find other sources. For example, in 1836-37 the Western Academy made an appeal to the Missouri Legislature. Missouri's lawmakers declined to give the organization any money, although they did grant it a charter. Having failed at the state level, the members petitioned Congress asking for "the aid of the General Government, in the purchase of a library and instruments, the erection of a suitable building, and the purchase of a lot of ground for a botanical garden."⁸

In their entreaty to Congress, the members stated several reasons why their organization should receive government money. They pointed out that St. Louis' geographical position made it the ideal headquarters for Western exploration. Furthermore, they argued that their academy could oversee the investigation of the vast region more efficiently and get the job done more quickly than "individual exertions."⁹ Despite their eloquence, however, no money was forthcoming from Congress, either.

The Western Academy approached another possible source of monetary backing through a printed solicitation it distributed to "the people of St. Louis." This appeal invited interested individuals to join the organization and assured all St. Louisans that their financial contributions would help create a brave new era of prosperity while at the same time "drawing the attention of the scientific world."¹⁰

Unfortunately, the Western Academy failed to rouse widespread community enthusiasm. Public financial support remained slight, and the Academy died after only seven years of existence. Its last public

action was a reception given for the artist and naturalist John J. Audubon in St. Louis in 1843.¹¹

The demise of the Western Academy was largely due to bad timing. Most St. Louisans in the 1830s and 1840s were, in Henry King's words, "too occupied with the wants of life" to be overly concerned with the welfare of something as seemingly superfluous as an academy of science.¹² Western Academy members therefore failed to attain one of their main goals: permanently establishing the culture of science in Missouri. Nevertheless, this was only a partial failure, for they did manage to sow seeds that would later take root in the growing town. As Western Academy member William Greenleaf Eliot put it, the organization served to remind the community that "there are intellectual and moral events that money cannot buy."¹³ This accomplishment, as high-minded as it sounded, had more practical political overtones. The Western Academy's quest to plant American culture and institutions on the threshold of the West dovetailed exactly with one of the nation's dominant political credos.

Throughout its life and even after the demise of the Western Academy, the men who founded the organization benefitted from, and in their way played a significant part in, the overwhelming American surge westward. The idea that the United States was fated to extend its boundaries to the Pacific Ocean had been discussed at least since the Adams-Onís Treaty of 1819 (the so-called "Transcontinental Treaty"), when the United States acquired Florida from Spain. This concept, which became known as "manifest destiny," grew in popularity in the 1830s and found its greatest expression in the 1840s, when the United States expropriated territories even more immense than those of the Louisiana Purchase.

Science enthusiasts in St. Louis sat in the perfect position to benefit from the United States push to gain dominion over the continent. Centrally located, reasonably secure, and reliably connected to the power centers in the East, St. Louis did indeed, as the members of the Western Academy stated in their petition to Congress, provide the logical starting point for early Western exploration, military conquest, and settlement. Members of the Western Academy made the most of St. Louis' unique situation by associating themselves with the military and trading expeditions that were the thin edge of American westward expansion. They paid for the privilege of furthering their scientific pursuits by providing their services as scientists and physicians. For example, George Engelmann provided advice and helped numerous explorers, such as John C. Fremont and Joseph Nicollet, who in return acquired for the enterprising amateur naturalist a bounty of specimens for study and trade. Another illustration of this symbiotic relationship was Friedreich

Wislizenus' service as a physician during the Mexican-American War, when he joined the invading American army as a surgeon and concurrently made scientific observations and collected a vast quantity of previously unknown specimens.

The invasion of Mexico and other grasping behavior was sanctioned by numerous factions, including powerful commercial interests. The recent opening of China excited American traders and shipowners, who saw the harbors of San Diego, San Francisco, and Puget Sound as necessary waystations on the route to the Far East. St. Louisans such as Senator Thomas Hart Benton and Academy member Henry King were determined to see that their town also served as a stopover for such commerce via an overland route. Consequently, they promoted a trans-continental railroad that would connect the East with the Pacific Ocean by way of St. Louis.

America's future independence was believed to rely not only on commerce, transportation systems, and the exploitation of western mineral wealth. Another key element was the westward expansion of American agriculture. The extension of cotton culture into Texas was a natural outgrowth of the expansionist philosophy as was the settlement of Oregon by American farmers. The Western Academy promoted immigration beyond the Mississippi and encouraged agriculture. George Engelmann was especially active in both areas. He worked directly to bring Germans to Missouri, for instance, and admonished them to adopt American ways. Also, he hoped to stimulate the region's agrarian economy by learning about its climate, geology, and indigenous plant life.¹⁴

Despite the laudable individual efforts of some of its members and its clear ties to the powerful concept of manifest destiny, the Western Academy of Natural Sciences of St. Louis as an organization made only minor contributions to scientific knowledge. Although it did help enhance the collections of some science groups in the East and in Europe through the exchange of specimens, its failure to publish anything on its own relegated the Western Academy to almost complete obscurity.

The most significant contribution the Western Academy made, in fact, was that it served as a pilot organization for a more successful and productive society for the advancement of science in St. Louis. This new society, founded thirteen years after the Western Academy's demise, fell heir to both the older organization's philosophical outlook and its collections of specimens and books. It also inherited the experience and expertise of some former Western Academy members, including George Engelmann and Friedreich Wislizenus. These stalwart amateurs, along with other "men of science" in the community, carried on the work begun in St. Louis' adolescence and expanded it as the city matured and continued to prosper.

Part II. The Academy Of Science Of St. Louis, 1856-1881: Years Of Triumph, Years Of Tribulation

In January 1856, former Western Academy leaders George Engelmann and Friedrich A. Wislizenus met with a group of ten other medical doctors, a lawyer, a businessman, and an engineer to discuss the formation of a second St. Louis society to advance the study of science. In addition to Engelmann and Wislizenus, this group consisted of Charles P. Chouteau, James B. Eads, Nathaniel Holmes, Moses Linton, William McPheeters, Moses M. Pallen, Simon Pollak, Charles A. Pope, Hiram A. Prout, Benjamin F. Shumard, Charles W. Stevens, William H. Tingley, and John H. Watters. The motives of this group mirrored those of the founders of the Western Academy: they hoped to improve St. Louis' cultural life and they wished to aid in the exploration and exploitation of their state and the West.

On February 8, 1856, eleven of the original fifteen men assembled as an *ad hoc* organizing committee to talk about the proposed society. After careful consideration, the group decided that the new society's *raison d'être* would be "the investigation of subjects pertaining to the various branches of science, the accumulation of a scientific library, and the formation of a museum which should contain collections in the various departments embraced in the term, Science, and also objects illustrating the manners and customs of the aborigines of North America."¹

The *ad hoc* committee also discussed how the new society might be financed and talked about the desirability of acquiring certain collections of fossils and other specimens located in St. Louis. The committee appointed William H. Tingley, Benjamin Shumard, and Charles P. Chouteau to prepare a circular addressed to the people of St. Louis who could donate funds and collections.

In addition, the *ad hoc* committee decided to make application for a charter at an upcoming session of Missouri's General Assembly. The organizers then named Hiram Prout, William Tingley, Benjamin Shumard, and Nathaniel Holmes to a subcommittee charged with drafting a constitution and by-laws. Furthermore, this subcommittee was instructed to consider whether the new society should be named the "Academy of Science" or the "Academy of Natural Science."² The meeting adjourned after the planners agreed to meet again on being notified by the chairman of the subcommittee.

In March, the chairman of the subcommittee, William Tingley,

called another meeting of the *ad hoc* organizing committee. At this meeting Tingley reported that the subcommittee had finished writing a constitution and by-laws. After discussion which resulted in minor revisions, the group adopted the document.³

The constitution they accepted consisted of six articles covering the society's name, its mission, members, officers, meetings, and amendments. According to Article I of the Constitution, the new society would be called "The Academy of Science of St. Louis" instead of "The Academy of Natural Science." This decision reflected a conscious effort to give the new organization a broader scope than the old Western Academy of Natural Sciences. The natural science tradition was still strong in the Midwest in the mid-nineteenth century, but "natural philosophy," a term used to define the study of Newtonian physics, had also long been in vogue.⁴ Some of the founders of the second St. Louis science society, such as engineer James B. Eads, were more interested in natural philosophy than natural history—hence the choice of the all-encompassing name.

Article II outlined the Academy's mission, which included the promotion of "Zoology, Botany, Geology, Mineralogy, Paleontology, Ethnology (especially that of the Aboriginal Tribes of North America), Chemistry, Physics, Mathematics, Meteorology, Comparative Anatomy and Physiology." Other "objects" of the association would be "to collect and treasure" specimens, to maintain a library and instruments for the study of specimens, to publish original research, and to establish correspondence with "scientific men, both in America and in other parts of the world."⁵

Article III dealt with membership; two categories were defined: associate and corresponding. The authors of the Academy's Constitution defined associate members as St. Louis residents "desirous of cultivating one or more of the branches of Science." The drafters of the document categorized corresponding members as "men of science, not living in the city and county of St. Louis, who shall be elected such by virtue of their attainments, and of other persons, not resident in the city of St. Louis, who may be disposed to further the objects of the Academy by original researches, contributions of specimens, or otherwise."⁶

Article IV named the offices of the Academy and outlined the responsibilities of each office. In addition to the usual roster of president, vice-presidents, corresponding secretary, recording secretary, treasurer, and librarian, the Constitution required the offices of a board of curators to supervise the Academy's museum collections.

Articles V and VI provided for meetings and amendments. The by-laws embraced by the Academy equipped the new association with

guidelines for the composition and responsibilities of standing committees; outlined procedures for the library, museum, and publications; and stated when regular meetings should be held and what agenda categories should be.⁷

The founders of the Academy of Science of St. Louis were accomplished individuals. George Engelmann, the group's first president, was its best-educated and most enthusiastic supporter. Engelmann acquired his interest in science as a youth growing up in Frankfurt, Germany. His father, an ordained minister and head of a school for girls, was also something of a savant who took George with him to the meetings of Frankfurt's Sekenberg Society of Natural History.

Engelmann's father wanted him to follow family tradition and enter the clergy, but the young man decided to study medicine instead. Engelmann made this choice largely in order to obtain a good education in science. He started his studies at the University of Heidelberg but was expelled for expounding liberal radical views. After Heidelberg, he attended the University of Berlin and later the University of Wurzburg. He received his M.D. from Wurzburg in 1831 at the age of twenty-two. Interestingly, his thesis was in botany instead of medicine. It concerned abnormalities in the formation of blossoms.

After receiving his M.D., Engelmann spent several years at the University of Paris studying natural history in the company of Alexander Braun and Louis Agassiz, both of whom he had met during his stay at Heidelberg. Leaving Paris, he came to America in 1834 to settle some business matters for several uncles who had invested in property near Belleville, Illinois.

The young physician thrilled at the prospect of living so near the American West, a land virtually unknown to botanists. After landing in Baltimore, Engelmann immediately left for Philadelphia where he met with the botanist/ornithologist Thomas Nuttall at that city's Academy of Sciences. Nuttall was one of the few natural scientists who had traveled extensively in the Mississippi River Valley, and Engelmann was eager to find out what he had learned of the region's flora.

After coming to Illinois, Engelmann put his eagerness to study and collect aside for a time in order to make a few dollars practicing medicine. He began as soon as he could—in 1834 and again in 1837 he made extended trips through Arkansas, Louisiana, and Missouri. He chronicled these journeys in the journal **Das Westland**, a periodical written in St. Louis and printed in Germany that encouraged German immigration to the St. Louis area.

Engelmann's trip in 1837 was not to be his last excursion through the untamed, romantic lands west of the Mississippi, although it would be several years before he went again. Later in life he visited Colorado,

Utah, British Columbia, California, and the Mexican border regions of Arizona. In the early years of his practice in St. Louis, however, he had to spend a great deal of time attending patients. And his hard work paid off, as he eventually gained the reputation as the community's most prestigious obstetrician.

Although his professional duties kept him busy, Engelmann continued to compile scientific information and collect specimens in St. Louis. Throughout his life he made detailed daily meteorological readings and published summaries of his findings. Engelmann's meteorological commentaries constituted more than a hobby: they were directly applicable to important scientific work undertaken by explorers and scientists in the Midwest. The French geographer and astronomer Jean Nicollet found Engelmann's data, along with those accumulated by the Jesuit Fathers of St. Louis University, useful in preparing for his survey of the Upper Mississippi River Valley.⁸

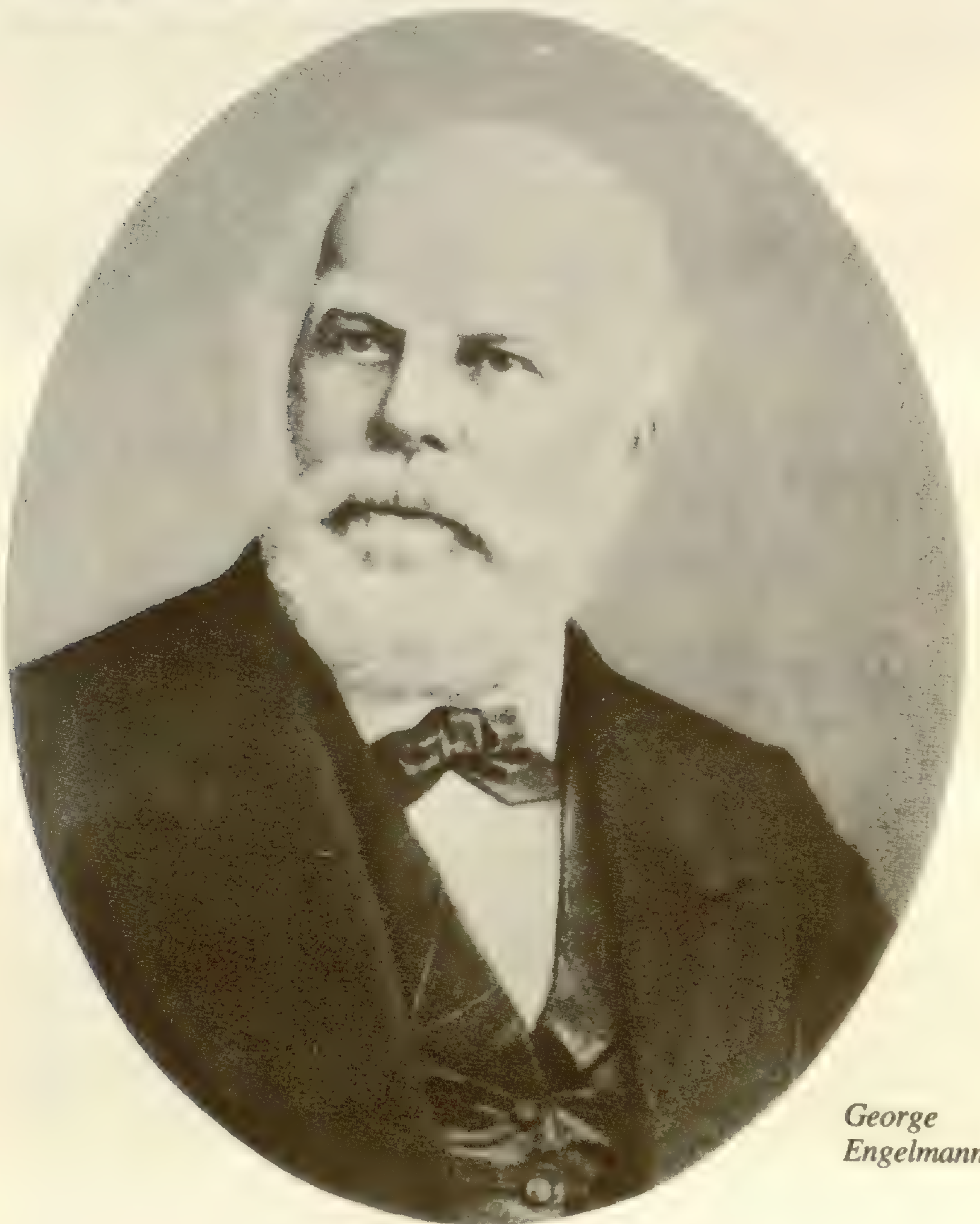
In addition to busying himself with watching and recording the weather, Engelmann continued to personally collect plants when he could. He also traded for or bought specimens from other collectors, which he in turn sold or exchanged with museums and naturalists in the United States and Europe. He also procured specimens by affiliating himself with exploring parties heading for the West, including those of John C. Fremont and Josiah Gregg. Engelmann gave advice and checked the accuracy of the explorers' scientific instruments, and they repaid him by gathering botanical and geological specimens. Engelmann frequently managed to get his own collectors appointed to trading and military expeditions. These individuals were university-trained St. Louis Germans hand-picked and instructed by Engelmann.

In the course of his collecting, Engelmann made many contacts with scientists and science societies all over the country and the world. He had strong ties with the Academy of Natural Sciences of Philadelphia and corresponded with a variety of prominent scientists, including the pioneering naturalist Jacob Lindheimer, who worked in Texas, and the distinguished Asa Gray of Harvard. Gray frequently received botanical specimens from Engelmann and, in return, helped the St. Louis amateur scientist raise funds for collecting expeditions.

Engelmann soon gained a national reputation, which sprouted from his collecting and grew as a result of scholarly accomplishments. He was the first to point out that American grapes were immune to the phylloxera that ravaged European vineyards. In 1842 he wrote a paper on American morning glories, which according to a later nineteenth century appraisal, "caused a true sensation in botanical circles."⁹ In 1852 he published in the **American Journal of Science** the first scientific description of the impressive saguaro cactus. He subsequently

authored papers on most of the species of cacti in the United States using specimens and information provided by other collectors, members of the Pacific Railroad Survey, the Mexican Boundary Commission, and other botanists working in California and Arizona. This work long stood as the standard authority on that family of plants.

In the 1850s, Engelmann's status as a prominent amateur botanist prompted Henry Shaw to employ him to help plan a botanical garden on the wealthy merchant's estate.¹⁰ The garden they mapped out became the renowned Missouri Botanical Garden. His work garnered many honors for Engelmann. Washington University in St. Louis named its principal botany professorship after him, for example, and fellow botanists gave his name to three genera and several plant species, including a cactus and the majestic Engelmann spruce.



*George
Engelmann*

Engelmann would eventually join thirty-three science societies. He was a charter member of the U.S. National Academy of Sciences and remained active in that most eminent organization for many years. When Engelmann died in 1884, the Academy of Science dedicated an issue of its journal, **Transactions of the Academy of Science of St. Louis**, to his memory. Enno Sander, a fellow Academy member, wrote in that issue that Engelmann had done “more than any other member for the establishment of [the Academy’s] fame and reputation among the scientific world.”¹¹

Like George Engelmann, Friedreich Adolphus Wislizenus earned a reputation as an accomplished observer of Western natural history. Wislizenus was born in Thuringia, Germany, in 1810. When his parents died of typhoid, the four-year-old Wislizenus went to live with a maternal uncle, a physician, who saw that his nephew received a good gymnasium education.

After completing his gymnasium course, Wislizenus attended the universities in Jena, Goettingen, and Wurzburg. He suspended his university career, however, to join a revolutionary uprising against the German government, which at the time consisted of a loose union of independent states known as the German Confederation. In 1833 he took part in the unsuccessful storming of the Federal Diet, the *Bundestag*, in Frankfurt. Unlike many of his fellow revolutionaries, who were caught and sent to prison after being routed in Frankfurt, Wislizenus managed to elude capture. He fled to Strasbourg and from there to the safety of Switzerland.

Wislizenus made the best of his exile to Switzerland by entering the newly-formed University of Zurich. He had only been there at short while, however, before once again joining a revolutionary cause—a movement to aid Giuseppe Mazzini in his bid to overthrow the Italian monarchy. This scheme met with no more success than the raid that forced Wislizenus to flee Germany. The expedition mounted by the Mazzini sympathizers was met at the border by Swiss troops and forced to disband, whereupon Wislizenus laid down his gun and went back to Zurich to concentrate on learning.¹²

At the University of Zurich, Wislizenus attacked his studies with the same zeal as he had his political adversaries although fortunately he esteemed the faculty more than he did either the German Confederacy or the Italian monarchy. Wislizenus’ professors were some of Europe’s most knowledgeable scientists, including the naturalist Johann Schoelein and Lorenz Oken, the founder of the first German Congress of Naturalists and Physicians. Under the tutelage of such mentors, Wislizenus learned almost as much about the natural sciences as he did about medicine, his major field of study. He graduated with honors in 1834.

The young doctor went to Paris for a short time after earning his degree. He stayed there a few months observing the practice of medicine in hospitals but concluded that his destiny lay elsewhere—perhaps in the New World. Wislizenus sailed from Paris to New York City, where he remained for two years before once again growing restless and electing to go west.

After hearing that many of his compatriots had found good homes there, Wislizenus arrived at the small community of Mascoutah in Southern Illinois. In three year's time, however, Wislizenus had grown disenchanted with the settled life of a country doctor and made plans to relocate in St. Louis. But before moving, he would make a six-month journey into the untamed regions west of the Mississippi.

Wislizenus had long harbored a craving to see the American wilderness, so in 1839 he went to Westport, Missouri, and joined a St. Louis Fur Company expedition bound for the Rockies. From this "jumping off" point he traveled with the traders, sleeping on the ground and feasting on buffalo meat, up the Kansas River to the Platte, along the Platte to Fort Laramie, and over the Black Hills and the Wind River Mountains to the annual rendezvous on the upper Green River in what is now Wyoming. The traders conducted their business there, exchanging goods for beaver pelts with thousands of Indians and some mountain men, and then departed for Missouri. Wislizenus stayed behind and continued westward with a large group of homeward-bound NezPerces and Flathead Indians, going as far as Fort Hall on the Snake River, near the site of present-day Pocatello, Idaho. From Fort Hall, Wislizenus intended to cross the Sierra Nevadas into California. His plans fell through when he failed to find a guide willing to show him the route, and he returned to St. Louis via the Arkansas River.

After his arrival in St. Louis, Wislizenus published an account, in German, of his travels. Since he took no instruments and made no systematic records, he regarded his journey as an adventure, not a scientific expedition, and he disclaimed any scientific expertise in his book. Nevertheless, his descriptions of the plants, animals, geology, and inhabitants of the West were rendered in considerable scientific detail in the narrative.¹³ The book made little impact on the learned community who could read it, however, and it had even less popular appeal.

Wislizenus was disappointed with the reception his book received, but he must have been pleased with his decision to move to St. Louis. When he returned from the Rockies, he plunged into the practice of medicine at St. Louis with characteristic fervor. And in a short time, the young doctor enjoyed a large income and a favorable reputation among his colleagues and the town's growing community of Germans, who were his principal patients.

Wislizenus worked diligently at his practice for six years, even taking care of his friend George Engelmann's patients for a time when Engelmann went to Germany to be married. His fascination with the West remained compelling, however, and as soon as he could afford it, he started on an ambitious trip to observe and record the flora, fauna, geology, climate, and topography of northern Mexico and parts of California.

Wislizenus' timing for this expedition turned out to be extremely bad. The explorer reached Mexico just before war broke out between that country and the United States. He and other Americans there were promptly imprisoned by the Governor of the state of Chihuahua and spent several months, in Wislizenus' words, "in a very passive situation" that lasted until their release by invading American forces.¹⁴ Upon being set free, Wislizenus temporarily joined the army as a surgeon and continued his scientific observations. He remained with the army until it reached the mouth of the Rio Grande, proceeding from there to New Orleans and up the Mississippi to St. Louis.

The war frustrated Wislizenus' effort to make a scientifically focused tour. Nevertheless, his research and collecting yielded a wealth of information and specimens despite the numerous difficulties he faced and the changes in plan he was forced to make. The intrepid German managed to visit several mines in New Mexico and analyze their ores; and he made detailed studies of numerous geological formations, compiled meteorological tables, calculated the elevation of key points along his route, and collected an impressive number of previously unknown plants.

At the insistence of Missouri Senator Thomas Hart Benton, the United States Senate published Wislizenus' account of his expedition in English in 1848. In addition to Wislizenus' daily journal entries, the book contained maps, meteorological tables, and a "botanical appendix" written by George Engelmann.¹⁵ This book, unlike the first one Wislizenus wrote, was widely appreciated. In fact, it was the most important scientific contribution Wislizenus made during his active and fascinating life. The explorer Alexander von Humbolt praised and used it, for instance, and a German translation was sold in Germany.

Wislizenus went to Washington to supervise the publication of his book in 1848. When he returned to St. Louis, he found there a raging Asiatic cholera epidemic. This pestilence was not new to St. Louis. The first cholera outbreak occurred in the early 1830s, brought by travellers to St. Louis from Pittsburgh and Cincinnati via the Ohio and Mississippi rivers. It came again in 1848 when thousands of German immigrants, fleeing a European epidemic as well as poor harvests and economic malaise in Germany, arrived at the city.¹⁶

Wislizenus and every physician in St. Louis worked hard to relieve the suffering of the epidemic's victims. Some of the doctors contracted the disease and died themselves. Wislizenus survived, however, and was among those who called for the construction of adequate sewers to fight the spread of the malady. He and his St. Louis colleagues suspected that the disease might be transmitted by human sewage, though it would be fifty years before Robert Koch discovered the responsible bacterium.¹⁷

After the medical crisis in St. Louis became less severe, Wislizenus traveled to Istanbul to marry Lucy Crane, a woman he met in Washington when he was overseeing the publication of his second book. He and his new bride honeymooned in Europe. They came to Washington in 1851 and to St. Louis a year later. His marriage mellowed Wislizenus' urge to roam. After 1852 he never again displayed the roving spirit that had taken him to so many places. He remained in St. Louis, deeply immersed in his medical practice, scientific studies, and cultural and educational organizations for the rest of his life.

Like his friend and colleague George Engelmann, Wislizenus was an earnest observer and recorder of the weather. He kept detailed records which he published in various journals. He also authored medical papers and works on archaeology, entomology, and natural philosophy. In addition to his writing and his practice, Wislizenus found time to help establish numerous organizations in St. Louis, including a school for midwives, a lying-in hospital, and the Missouri Historical Society.

The other ten doctors who founded the Academy of Science of St. Louis were also avid amateur scientists. Benjamin Shumard, who worked as a field paleontologist on the United States survey of Wisconsin, Minnesota, and Iowa, arrived in Missouri to undertake the state's first exhaustive geological study. He later moved to Texas to work on a geological survey of that state. Moses Linton taught at the St. Louis University Medical School. He established the **St. Louis Medical and Surgical Journal**, the first medical journal published west of the Mississippi River, in 1843.

William McPheeters taught at the St. Louis Medical College and at the Missouri Medical College and served as chairman of the Academy's first standing committee on entomology. Moses M. Pallen came to St. Louis to teach at St. Louis University in 1842. Pallen developed a profound interest in the study of fishes and reptiles and during the Asiatic cholera epidemic of the 1840s served as the city's health officer. Simon Pollak emigrated from Poland, arriving in St. Louis in 1845. Pollak helped found, in addition to the Academy of Science, the Missouri School for the blind.

Charles A. Pope chaired the Academy's first standing committee

on comparative anatomy. For many years, Pope held the position of dean of the St. Louis Medical College. (Because of his considerable influence, many people referred to the school as "Pope's College.") He gave the Academy numerous specimens and allowed the members to meet and to house their collections and library in one of the college's buildings.

Hiram A. Prout received his medical degree from Transylvania University in Kentucky in 1827 and came to St. Louis to teach medicine. He became an expert paleontologist, publishing fifteen articles on geology and paleontology between 1846 and 1868. Charles A. Stevens taught at the St. Louis Medical College for nineteen years before taking over as superintendent of the St. Louis County Insane Asylum in 1868.

Another medical doctor, W.H. Tingley, enjoyed a good practice in St. Louis. He served as the Academy's first corresponding secretary but left the city before the end of 1856. John Henry Watters came to St. Louis in 1854. He taught at the St. Louis Medical College and at the Missouri Medical College.¹⁸

Although medical study offered the best opportunity for learning the fundamentals of science during the first half of the nineteenth century, other wealthy professional men developed significant scientific interests as well. The three non-medical Academy members illustrate the point.

James B. Eads, a self-taught engineer, chaired the Academy's first committee on physics and later served as president of the organization. At various times, Eads salvaged sunken river boats, designed and built armored steamboats for the Union during the Civil War, and engineered a system of jetties that opened an unobstructed Mississippi River channel to the Gulf of Mexico. His most celebrated accomplishment, however, was the St. Louis-Illinois bridge he built over the Mississippi at St. Louis.

Another science enthusiast, lawyer Nathaniel Holmes, came to St. Louis from New England. He served for twelve years as the Academy's corresponding secretary. He communicated with a myriad of science societies in the East and abroad and acquired large numbers of their publications for the use of Academy members. Charles P. Chouteau, the grandson of the pioneering Pierre Chouteau, also became a very active member of the Academy. Chouteau's American Fur Trading Company conducted business in the West, and Chouteau developed a fascination for the region's natural history.

During the first years of its existence, the Academy gained many new members. In the first two years alone, 146 new associate members joined. Among those who enlisted as associate members were Albert

C. Koch, a physician and naturalist; Louis Boisliniere, who became St. Louis County Coroner; and Enno Sander, a pharmacist who ran a highly profitable mineral water company in St. Louis. In the same two years, the Academy elected seventy-nine corresponding members, including Joseph Henry, Secretary of the Smithsonian Institution; Louis Agassiz, the famed naturalist; and Lieutenant Governor K. Warren, an officer in the United States Army Corps of Topographical Engineers.¹⁹

The growth of the Academy, which greatly heartened the founders, was overshadowed by a bothersome deficiency—the Academy did not own a building of its own. For the first thirteen years, the members met in the east wing of the O’Fallon Dispensary building at the St. Louis Medical College. After that wing burned in 1869, the Academy was forced to move to the Hall of Public Schools.

Lack of money kept the Academy from acquiring its own structure. The Academy relied on dues and contributions for financial support, and it frequently ran short of cash. Through its first quarter-century, Academy members often set the priorities of amassing an endowment fund and buying a building but never met their goals. They did maintain their organization, however, even when membership declined during the lean and trying years of the Civil War.²⁰ In fact, the Academy actually benefitted from the war. When Federal troops confiscated McDowell College turning it into a prison, the Academy salvaged the school’s large natural history collection.²¹

At the Academy’s semi-monthly meetings, members read letters from their corresponding counterparts, considered papers for publication in **Transactions**, discussed topics of scientific interest, elected new members, and gave presentations. These talks often had considerable merit, considering the “amateur” status of most of the members. For example, at the January 12, 1857, meeting, a member exhibited some specimens of aluminum, which at the time cost more than gold. He gave a brief history of the ore and talked about methods of mining and processing aluminum. He predicted, quite correctly, that aluminum would be manufactured in large quantities and at a cheap rate.²²

Academy members regarded collecting and preserving scientific specimens an important and stimulating activity. Although the organization could afford to buy few items, its museum collection rapidly grew.²³ Charles Chouteau donated many specimens he obtained from the area of the Upper Missouri River. In 1856 the intrepid businessman gave a large collection of fossils gathered by naturalist Ferdinand Hayden in the Nebraska Territory. Later that year Chouteau donated some animal skulls, a buffalo head, two stuffed buffalo, the head of a grizzly bear, three stuffed mountain sheep, a mastodon tooth, and Indian artifacts he obtained on his annual trip to his company’s trading posts. In 1857,

the Academy sent a taxidermist along with Chouteau on his sojourn up the Missouri. The men returned to St. Louis with a profusion of fish, bird, reptile, and mammal specimens.²⁴

In addition to Chouteau's contributions, the Academy accumulated the skeleton of a European cave bear and a rare fossil ox skull dredged from the bottom of Chouteau's Pond in St. Louis before the little lake was drained and filled. The Academy also acquired the rocks and ore samples Friedrich Wislizenus gathered in Mexico in the 1840s, fossils collected by Albert Koch in Missouri and Arkansas, and important type-specimens found by Governor K. Warren.²⁵ Other Academy holdings included a large collection of marine and fresh water shells; plant specimens gathered by St. Louis Bishop Joseph Rosati; bird skins from California, Texas, and New Mexico; a collection of several hundred mounted birds obtained from the Smithsonian Institution and the Academy of Sciences of Philadelphia; and an "interesting collection of East Indian figures" donated by a corresponding member living in Calcutta, India.²⁶

The Academy kept its collections in the O'Fallon Dispensary building at the St. Louis Medical College, where many of the specimens were displayed in locked cases. Respectable citizens could visit the small museum free of charge on Tuesdays and Fridays from one o'clock until sunset.²⁷



St. Louis Medical College

This museum met an unhappy end in 1869 when a fire in the Dispensary building destroyed the collections. Members of the Academy

continued to collect after the catastrophe, but for many years, new acquisitions seemed inadequate substitutes for those obliterated by the blaze.

The Academy's library, also stored in the dispensary, survived the fire only slightly damaged. Like the museum collections, the library had by 1869 grown to an impressive size. In fact, it had the reputation of being the largest of its kind west of the Allegheny Mountains. Members added to the library by soliciting donations of books and by exchanging the **Transactions of the Academy of Science of St. Louis** for the publications of other science societies. Joseph Henry, Secretary of the Smithsonian Institution, oversaw exchanges between the St. Louis group and foreign organizations. By 1881 the Academy's library held over 3,000 books and nearly 8,000 issues of periodicals.²⁸

Members of science societies in the East and abroad were eager to receive copies of the Academy's **Transactions**, which contained papers on the natural history of the American West, a still largely unexplored and unknown area. The **Transactions** also featured papers on the natural history of Missouri and on other local and regional topics.

George Engelmann contributed papers on St. Louis' annual rainfall, on the stages of the Mississippi River at St. Louis, and on the town's elevation above sea level. Other Academy members wrote about Missouri's fossils, coal measures, lead deposits and iron industry; about Indian mound excavations in the Mississippi River Valley; and about the deep wells at the St. Louis County Insane Asylum and the Belcher sugar refinery.²⁹

One **Transactions** paper caused a heated debate among Academy members. In the first issue of the journal, Albert Koch published a paper on some mastodon bones he had found in Missouri.³⁰ Koch concluded that humans had coexisted with the mastodon and had in fact hunted the great beasts. He wrote:

I will state then, that, in the year 1859, I discovered and disinterred, in Gasconade county, Missouri . . . the bones of the above-named animals. The bones were sufficiently well preserved for me to decide, positively, that they belonged to *Mastodon giganteus*. Some remarkable circumstances were connected with the discovery. The greater portion of these bones had been more or less burned by fire. The fire had extended but a few feet beyond the space occupied by the animal before its destruction; and there was more than sufficient evidence on the spot, that the fire had not been an accidental one, but, on the contrary, that it had been kindled by human agency, and, according to all appearance, with the design of killing the huge creature . . .³¹

To further his contention, Koch declared that he had found a large number of heavy stones mingled with the remains of the mastodon. He

assumed that humans had carried these stones to the site and threw them at the beast. As additional evidence, Koch unearthed several stone projectile points, a stone spearhead or knife, and some stone axes on the site.³²

In a later issue of the **Transactions**, Friedreich Wislizenus refuted Koch's claim that *homo sapiens* had lived as a contemporary of the mastodon. Wislizenus concluded that Koch's find could not be used to support the hypothesis that the mastodon, which Wislizenus referred to as an "antediluvian animal," had coexisted with humans nor with any "intelligent apes."³³ Nathaniel Holmes, the lawyer, supported Koch's theory. At a meeting of the Academy, the New Englander defended Koch and cited several scientists whose work suggested that in all probability man had existed as a contemporary of the mastodon.³⁴

Science has since proven that human beings did live at the time of the mastodon in North America and probably preyed on them, but the Koch-Wislizenus-Holmes debate involved deeper issues.³⁵ Wislizenus favored a conservative approach to interpreting the evidence. He apparently believed that Koch's fossils dated from before Noah's flood, which was a view founded in the conventional wisdom of the early nineteenth century. Holmes and Koch, in contrast, discounted the deluge theory and seemed inclined to accept radical ideas.³⁶ The debate demonstrated the rift that separated those who believed in the traditional, creationist interpretations of the fossil record and those who espoused newer theories.

Although the Academy printed papers on local and regional subjects, many **Transactions** offerings through the first twenty-five years reported on work being done in the Far West by the Army Corps of Topographical Engineers. In the two decades before the Civil War, John C. Fremont and other military explorers undertook grand surveys of the topographical and natural history of the West. They concentrated on developing a national definition of the West, locating the best routes for future immigration, and compiling an inventory of the region's natural resources. The information accumulated by the Army was widely used by the government to promote settlement and by railroad companies to plan the Transcontinental Railroad and other lines.

Academy members studied the scientific data the Corps provided them and examined the specimens the Corps collected. In the first volume of the **Transactions**, members published sixteen articles that described hundreds of newly discovered fossils gathered by scientists working with the Corps. Hiram Prout, for example, wrote four lengthy papers on *Bryozoa* specimens collected by geologists who accompanied Captain John Pope on a survey expedition to Texas and New Mexico in 1855-56.³⁷

The ten railroad surveys conducted by the United States in the 1850s and 1860s provided excellent opportunities for scientists to study the natural history of the West. Christopher C. Parry was a scientist who labored on the Union Pacific Railroad Survey. As a corresponding member, Parry sent the Academy of Science of St. Louis news of the scientific work being done on the survey. He also occasionally wrote romantic accounts of his experiences. His description of what he saw when he climbed Pike's Peak, for example, no doubt stirred the imaginations of many **Transactions** readers. He wrote:

As the sun rose majestically above the well defined horizon of the plains, the resemblance to a wide open sea was strikingly manifested. A slight haze served to heighten the pleasant illusion, the inconsiderable elevations appearing only as ripples, or low islands, on its surface. To carry out the resemblance still farther, the rounded grassy swells, the reef-like edges of tilted rock, at the foot of the mountains, could easily be taken for surges and breakers.³⁸

The most thrilling tale of Western exploration to appear in the **Transactions** told the exploits of a mining prospector. It also came from Christopher C. Parry's pen. As a group, mining prospectors roamed the West even more extensively in the 1850s and 1860s than the mountain men of an earlier era. Christopher C. Parry reasoned that these men probably knew more about Western topography than anyone else. To find out about the Grand Canyon of the Colorado, which had been explored in part by Joseph Ives in 1857-58, Parry questioned a former prospector named James White.

White claimed that he and three other men had left Fort Dodge to float down the Colorado in 1867. Traveling through the summer, the prospectors reached the Green River, where Indians attacked their camp killing one man. White and the other two survivors escaped in a raft and floated down the Green to the Colorado. The party felt lucky after their escape. Their mood soon changed as they rushed down the fierce Colorado. Only White escaped the violent rapids of the river, he told Parry. Reaching a downstream settlement after passing through what would become known as the Grand Canyon, White settled down and was living on the banks of the Colorado when Parry questioned him.³⁹

Parry published White's account in the **Transactions** in the late 1860s. White's assertion to have been the first European-American to pass through the Grand Canyon was later discredited by the doughty, one-armed explorer/scientist John Wesley Powell, who struggled through the canyon two years after White said he had.⁴⁰ The announcement of White's claim in the **Transactions** demonstrated how strongly the Academy felt its responsibility to disseminate the latest information about the West.

After the Civil War, the Corps of Topographical Engineers gave way to civilian explorers such as John Wesley Powell. Powell and others, among them Clarence King and Ferdinand Hayden (who had once gathered specimens in Nebraska for the Academy), completed the inventory of the West started by the Army. Unlike their military predecessors, this new generation of explorers had specialized training obtained in European schools or in new science departments attached to American universities.

Many of these new professional scientists went to work on state geological surveys. After the first Missouri Geological Survey in 1853, another, more comprehensive one began in 1870 and a third started five years later. Academy members became involved in all three, and they contributed to the knowledge of Missouri's geology.⁴¹

Men of learning all over the world recognized the unique position of the Academy of Science of St. Louis in relation to the geology and natural history of the American West. Scientists in the East and abroad frequently asked for specimens and information gathered west of the Mississippi by members and their collaborators. Jules Marcou, a Swiss scientist, for instance, contacted the Academy in 1858 requesting members to help him with his research. He wrote:

My endeavors at Geological maps are very crude and imperfect, and I earnestly desire that the learned Geologists of the West may make them more correct, and give them the form that may approximate them more nearly to the truth.⁴²

Such acknowledgment from so far away must have been gratifying, as no doubt was the recognition given the St. Louis group by their American colleagues. A demonstration of that recognition came in August 1878, when the American Association for the Advancement of Science held its annual meeting in St. Louis as the Academy's guest.⁴³

The founders of the Academy of Science of St. Louis created an association that emulated their contemporaries in the East and in Europe. They also recognized the importance of science in exploring and exploiting the newly-acquired territories in the West.

Through its first twenty-five years, the Academy lived with and flourished under the legacy of manifest destiny. It worked closely with fur traders, explorers, and scientists devoted to the exploitation of the West and to the promotion of westward expansion. In this, the second science academy in St. Louis was not much different from the first. But the Academy of Science was different from its ancestor in that while it performed its "manifest destiny" role, it also succeeded in disseminating information on a wide scale.

Whereas the Western Academy never published anything of note in its entire seven-year life, the Academy of Science in its first four

years alone published an entire volume of scientific papers. In the next twenty-one years, the organization would produce two-and-a-half more volumes, and by 1881 the Academy was exchanging those volumes for the publications of 260 science societies in Sweden, Holland, Belgium, Spain, Russia, Germany, France, Portugal, Denmark, Switzerland, Italy, Great Britain, and the United States. These publications, and the other activities of the members of the Academy, helped establish the city's reputation as a center for science in the expanding Midwest.

Part III. A Period Of Change, 1881-1903

In his annual address for 1881, the Academy's president, George Engelmann, predicted that the Academy would attract greater public attention in the future as it developed and grew.¹

As Engelmann anticipated, the organization did change in its next twenty-two years. Members revised the constitution in 1893. By that time death or retirement had claimed the Academy's founders. As the membership evolved, Academy meetings also transformed from relatively informal gatherings to large structured affairs with official programs that often featured lectures "divested of the technicalities on matters of current scientific progress" for the benefit of those who could not understand such information.²

The revision of the constitution in 1893 did not call for any radical departure from the Academy's original mission, but members did make major changes in the membership categories and in how the organization elected officers and conducted its administrative affairs.

The revised constitution identified four membership categories: active, corresponding, honorary, and patron. Active members were those who lived in the St. Louis area who and had an interest in science. They alone conducted the organization's business. Corresponding members were defined, as they had been in the original constitution, as non-residents who might help the Academy in some way. Honorary memberships were bestowed to people the Academy held in high esteem. Patron member status was granted to any person who gave the Academy \$1,000 or its equivalent.³

The revised constitution provided for elections-by-mail and for the yearly election of a special non-office-holding committee to nominate candidates for the upcoming year. These innovations gave the franchise to the entire membership "instead of leaving it through non-attendance to the few members who might be at the meeting when a vote was taken."⁴

In addition to the provision of a nominating committee charged with preparing a list of nominees, the members also amended their constitution in ways that took routine administrative business out of the hands of the membership, placing such matters under the supervision of a council consisting of the principal officers.

These constitutional alterations reflected changes in the Academy's growing membership. By 1885 most of the founders—including Eads, Pope, Prout, Holmes, Shumard, Engelmann, and Wislizenus—had either died or retired from public life. Their places were taken by other amateur

scientists and by a growing number of professional scientists from St. Louis colleges and universities. Moreover, the number of “non-professional” members—many of whom could not even rightfully claim the title of “amateur scientist”—had greatly increased. The constitutional modifications were an attempt to address the needs and desires of this new membership. They led to a more democratic process for nominating the most qualified persons; allowed the non-professional members to take a more active role; and removed the business details from meetings, leaving the sessions free for the “strictly scientific purposes of the Academy.”⁵

The meetings transformed significantly in the 1890s. In 1903 botanist William Trelease wrote a “biography” of the Academy in which he described the meetings of the 1880s. He wrote:

My own connection with [the Academy] dates from the autumn of 1885, when I came to the city to live. The notices I received were more commonly to the effect that the next meeting would be held at a certain time and place than with any indication of what would be done at the meeting. On a long table were to be found the recent additions to the library. At the head of the table sat the president and recording secretary. Around it were half a dozen or a dozen members who looked over the papers between attending to the items provided for the order of business. When “written communications” were called for, a paper for publication might be handed in, sometimes accompanied by an oral abstract, sometimes not. The order “oral communications” was pretty sure to lead some member to produce a specimen, piece of apparatus, or recent publication, on which he spoke, usually in a way to interest everybody present. Not infrequently nearly the entire body, like a German scientific gathering, gravitated after adjournment to a summer garden or winter “lokal,” where the discussion was apt to be continued over a glass of beer . . .⁶

Trelease also related how women sometimes attended meetings in the 1880s. He remarked, however, that the “ladies . . . appeared awed by the informality of the seating about the board, and could rarely be made to feel welcome . . .”⁷

In the 1890s the impromptu character of meetings gave way to formality when the Academy began meeting in a lecture room at the Missouri Historical Society. The room was equipped with a platform for the officers and regularly placed seats for the other members, who constituted an audience. For each meeting the officers produced a detailed program.

Some members mourned the passing of the spontaneity so characteristic of meetings before the 1890s. Nevertheless, by popularizing the proceedings and at the same time making them more formal, the Academy succeeded in doubling attendance. The officers also noted with satisfaction that more women attended meetings.⁸

In the 1890s, specimens that had not been announced on the program were rarely presented as they had been at earlier meetings. However, the Academy continued to collect throughout the last two decades of the century. Major acquisitions included a collection of approximately 10,000 paleontological specimens, a collection of over 600 butterflies, and several hundred pots and dozens of skulls from Missouri Indian mounds.⁹ The library also kept growing. At the end of 1902 it contained over 14,000 books and almost 11,000 issues of periodicals and pamphlets.¹⁰

Arch. Sec. St. Louis, Aca. of Sci.

PLATE 20



G. Harnbach, rec.

A. G. Smith & Co. Lith.

Illustration from Contributions to the Archaeology of Missouri by the Archaeological Section of the St. Louis Academy of Science

Like its meetings, the Academy's publications changed, too. The number of articles on Western geology and natural history decreased,

and papers weighted toward laboratory research increased.¹¹ Through its first twenty-five years, the Academy served as a critical transmitter of knowledge between the frontier and the East. When the frontier vanished, that role ended. Nevertheless, St. Louis remained a center for science, and the Academy continued to play a major part, particularly in the publication of research.

One of the most distinguished professional scientists who helped govern the Academy between 1881 and 1903 was Francis E. Nipher, a member of Washington University's faculty. Nipher wrote articles on many subjects, including "animal mechanics," the human memory, and meteorology. His primary interest, however, was physics. He was, in fact, one of only 200 Americans practicing the discipline of physics by the early 1890s. Moreover, he numbered among the one-fifth of the profession that regularly published research in heat, light, electricity, and magnetism.¹² His contributions to the **Transactions** included "On temperatures in gaseous nebulae" (1899), "The law of minimum deviation of light by a prism" (1895), "On the electrical capacity of bodies, and the energy of an electrical charge" (1895), and "On a rotational motion of the cathode disc in the Crookes tube" (1896). Nipher served as Academy President from 1885 until 1901.

Although the Academy was largely under the direction of professional scientists such as Nipher in the 1890s, the organization still appealed to amateurs who contributed to contemporary knowledge in meaningful ways. One member, Julius Hurter, illustrates the point. Julius Hurter, Sr., was born in Switzerland in 1842. He trained as a millwright and mechanical engineer in Europe. He came to St. Louis in 1866 to work as chief draftsman at the Fulton Iron Works, a position he held until 1906.

Hurter, like those other immigrants Engelmann and Wislizenus, harbored a passion for nature. When he first came to St. Louis he spent his leisure hours collecting birds in the fields and woods near the city. His collection grew to contain almost 300 specimens.¹³

The young engineer began collecting reptiles and batrachians in 1884 and became a respected amateur herpetologist, publishing four scholarly articles in the **Transactions**.¹⁴ His herpetology collection, which at the time of his death in 1917 contained over 3,500 specimens, was bequeathed to the National Museum of Natural History.¹⁵

Both professional and amateur scientists belonging to the Academy remained concerned over the homeless state of the organization. Since the beginning in 1856, the lack of a real, permanent abode for the Academy plagued the members. Even before the disastrous fire that demolished the O'Fallon Dispensary in 1869, the Academy had attempted to find a suitable facility to call its own. After the fire, the

Academy met in another temporary setting—the St. Louis Public School Board's building. These makeshift quarters proved unsatisfactory for a variety of reasons, and in 1876 the Academy made the first of several attempts to raise money to erect or buy a building of its own.

This first effort, which was shared by the Missouri Historical Society, resulted in the acquisition of a building site on which a home for both was to be constructed. The Academy could not procure enough money to build, however, and was forced to sell its share in the land.

After this failed attempt, the Academy carried on meeting in the Hall of Public Schools for the next twelve years before launching another campaign to acquire a home. This endeavor also failed, and the Academy moved to rooms at Washington University. In the 1890s the organization relocated to the Missouri Historical Society, which had by then secured a building.

The Academy was grateful for its quarters at the Missouri Historical Society, but the accommodations there were also insufficient. The Historical Society provided a large meeting room and limited shelf space for the Academy's many books, but the museum materials were stored in a basement and in other out-of-the-way places.¹⁶

The Academy made a new effort to obtain the much-desired building at the turn of the century, but with little success at first. Then, in 1903, the organization became the owner of a structure at 3817 Olive Street in St. Louis. After some renovations, the building, a gift from Mrs. William McMillan and her son William Northrup McMillan, seemed more than adequate for the Academy's purposes. For the first time in its nearly fifty years, the Academy owned a home of its own with a suitable place for its library and plenty of space to exhibit specimens. The Academy's future had never looked brighter.

Part IV. New Quarters, New Disappointments: 1903-1918

In 1903 the Academy's prospects looked good: it owned its own building; the membership appeared active and growing; and its revenues, totalling for the year over \$12,000, seemed adequate. The members rejoiced in their good fortune and looked forward to improving their new headquarters, adding to the library and collections, and enhancing their organization's finances. They also felt confident that in the new century "scientific results of merit" would be offered for publication in the **Transactions** in increasing number. Furthermore, the members believed that their meetings would continue to stimulate ever-growing public interest while at the same time maintaining the scholarly traditions of the past.¹

The optimism of 1903 carried through to 1906 when the Academy celebrated its fiftieth birthday. The organization observed its semi-centennial with a lavish banquet at which members and delegates representing other science societies gave speeches praising past accomplishments and expressing confidence in future successes. Among the distinguished delegates present were William Lochhead, Entomological Society of Ontario; Oliver C. Farrington, Field Columbian Museum; E.A. Birge, Dean of the University of Wisconsin; T. C. Chamberlain, Academy of Science of Chicago; C.H. Pammel, Iowa Academy of Science; and W.J. McGee, representing both the Philosophical Society of Washington and the National Geographic Society. The highlight of the evening came when a medal, emblazoned on one side with the image of George Engelmann and with the Academy's seal on the reverse, was given to all present under the auspices of Academy President Adolph Alt.²

In 1909 the Academy's condition appeared, in some ways, even healthier than it had been in 1906. For example, the membership increased 40 percent in 1909, placing it at its highest point (380) in the organization's history. In addition, by 1909 the Academy controlled a substantial endowment and could boast of a surplus in its annual fund.³ Nevertheless, clouds seemed to be gathering on the horizon.

President William Trelease's address for the year 1909 lacked the sanguinity of addresses for recent past years. He seemed most concerned with the Academy's financial state, particularly with the incessant need to find large sums to pay for maintaining the Academy's building on Olive Street. He reported that this constant drain on the Academy's resources had strained the publication budget, causing the articles in the 1909 volume of the **Transactions** to be "neither long nor

numerous." Trelease admonished the membership to look to the financial well-being of their Academy. He suggested that current pressure could lead to serious difficulties in the immediate future, and he called for efforts both to increase the size of the membership and to find people willing to make more large cash donations.⁴

By 1915 the Academy's financial state had worsened, as Trelease predicted it might. Its revenues for the year totalled only \$3,164—down from \$7,159 in 1909 and \$12,437 in 1903.⁵ Reacting to this crisis, the Academy made several attempts to increase its membership and to add to its bank accounts.

In an attempt to gain new members, the Academy broadened the constitutional definition of the associate membership category to include teachers, members of laboratory staffs, and university and college students.⁶ It also organized a meeting of "scientific men" to discuss ways of making the Academy a more effective catalyst of scientific and educational activities and called for changes in its lecture programs to make them more attractive to those interested in industrial research and development. Concurrently, it struggled to find more sources of cash.⁷ Unfortunately, all this energetic activity proved futile, and both the membership and revenues continued to drop.⁸ The Academy paid heed to Trelease's warning too late.

When the nation entered World War I in 1917, the already weakened Academy fell on truly dire times. Things had grown so bad by February 1918 that the council decided to discontinue a desperate membership drive and to close the Olive Street building to reduce expenses. The Academy's leaders then made plans to find future meeting places, to store the library and collections, and to sell the building.⁹

Although things slowed down after 1915, and almost completely stopped two years later, the years 1903-1915 were busy ones for the Academy. The Academy's meetings continued to play a role in the cultural life of the city. The meetings retained their formal character and still featured—at alternate gatherings—popular lectures aimed at the "layman." The Academy succeeded in increasing attendance from 1903 until 1909 but participation lessened, as did membership, after that.

A total of 405 people came to meetings in 1903. The average number who attended for that year was about twenty-five per meeting. In 1909 attendance reached an all-time high: more than 700 people came, and the average number per meeting grew to almost fifty. The total dropped to 544 in 1913, with an average number of thirty-six people showing up for any one meeting.

The topics covered varied greatly, as a survey of the minutes of the best-attended meetings for 1903, 1909, and 1913 shows. The best-attended meeting of 1903, which drew an audience of fifty people, con-

sisted of a talk, illustrated with lantern slides, on the Grand Canyon. One-hundred people came to the March 19, 1909, meeting to hear a lecture entitled "Birds of the Missouri Botanical Garden." The highlight of the most popular 1913 meeting was a talk called "How Worlds are Formed" given by G.O. James. James enthralled an audience of sixty-nine with his knowledge of the workings of the cosmos.¹⁰

In addition to meetings, the Academy busied itself with publishing eleven volumes of the **Transactions** between 1903 and 1920. Many of the papers issued were enduring scholarly works, including Thomas L. Casey, "Observations on the Staphylinid Groups Aleocharinae and Xantholonini, Chiefly of America" (1906); Otto Widman, "A Preliminary Catalogue of the Birds of Missouri" (1907); and Mary J. Klem, "The History of Science in St. Louis" (1914).

Although he published few papers in the **Transactions** in the first two decades of the twentieth century, William Trelease was one of the Academy's most active members. Trelease was born in Mt. Vernon, New York, in 1857. He was graduated from Cornell University with

"A representative group of trees in the Mexican state of Oaxaca" — Illustration from William Trelease's "The Agaveae of Guatemala"



Agaveae spec. Cerro de Bantle P. P. P.

degrees in science, and lectured at the University of Wisconsin, Harvard University, and Johns Hopkins University before coming to St. Louis as Engelmann Professor of Botany and Head of the Shaw School of Botany at Washington University in 1885. Four years later, Trelease was appointed Director of the Missouri Botanical Garden, a position he held until 1912. In 1913 he became a professor of botany and Head of the Botanical Department at the University of Illinois, a job he kept until his retirement in 1926.

Trelease received many honors during his long career, including honorary degrees from the University of Wisconsin, the University of Missouri and Washington University. He joined the Academy in 1885 and served as secretary from 1896 until 1903 and as president from 1909 until 1912.

Trelease believed strongly in the necessity of field study. He accompanied many scientific expeditions and traveled widely in America and Europe to collect specimens and to conduct research. One of the most important expeditions in which he participated was the Harriman Alaska expedition of 1899.

Trelease wrote prodigiously, and his writings covered a wide range of subjects in botany, including works on *Agave*, *Piper*, *Peperonia*, and *Quercus*. His bibliography numbered almost 300 titles.¹¹

Another very dynamic Academy member was Henry M. Whelpley. Whelpley was born in Michigan in 1861 and was graduated from the St. Louis College of Pharmacy in 1883 and from the Missouri Medical College in 1890. He taught at the St. Louis College of Pharmacy, where he became Dean and Professor of Pharmacology, *Materia Medica*, and Physiology; he also taught at the Missouri Medical College, where he was Secretary of the Faculty, Professor of Physiology and Histology, and Director of the Biology Laboratory.

In addition to teaching, Whelpley served as President of the American Pharmaceutical Association and was the treasurer of that group from 1908 until 1921. He was President of the American Conference of Pharmaceutical Faculties from 1905 to 1906 and was Secretary of the Missouri Pharmaceutical Association for thirty years.

One would think that Whelpley's considerable academic and professional duties would have left him little time for extracurricular activities, but this was not the case. Somehow the busy doctor found time to study and collect Indian artifacts. He passionately pursued this hobby, eventually amassing one of the largest and finest collections in the Midwest. He became an authority on Indian artifacts and won the respect of amateur and professional archaeologists by writing many articles on the subject. He was President of the Anthropological Society of St. Louis and Chairman of the Committee on Archaeology of the

Missouri Historical Society. In addition, he served as Vice President of the St. Louis Society of the American Institute of Archaeology and was a member of both the National Research Council State Archaeological Survey Committee and the Missouri Archaeological Survey.¹² As an active member of the Academy of Science, Whelpley worked on many committees and served as one of the Academy's directors for many years.

The Academy obtained several consequential donations of specimens and artifacts in the years 1909 to 1918, although it did not acquire Dr. Whelpley's impressive collection of Indian artifacts until the 1940s. The Academy received a large collection of mineral specimens from the Department of Mines and Metallurgy at the 1904 World's Fair in St. Louis, specimens from Arizona's Petrified Forest, Indian artifacts from Alaska, and a fine collection of fossil *brachiopoda* from Tennessee. Some of these items, along with the Academy's butterfly, pottery, and meteorite collections and those few items salvaged from the 1869 fire, were exhibited in a hall on the third floor of the Olive Street building.¹³

Collecting, publishing and organizing meetings were all familiar activities; however, the roles of property owner and landlord were new ones for the Academy. And although the acquisition of the Olive Street building in 1903 appeared to be a blessing, even then some nagging concerns about the property worried a few members. In his "biography" of the organization written in 1903, William Trelease expressed some of these apprehensions. He wrote:

Ample as the new building is for the present life of the Academy, it is but temporarily suited to the housing of valuable collections. . . . Very unfortunate, too, while the Academy is nominally able for the first time in many years to arrange its library and more important collections for convenient public use, it is actually confronted by the necessity . . . of utilizing no inconsiderable part of its new home for the purpose of revenue, by housing other homeless bodies, so that . . . its publication resources may be maintained.¹⁴

This early uneasiness about the Olive Street building blossomed into full-grown disenchantment among some of the members by 1913, who recommended that the property be sold and a new building erected at another site. The proponents of this proposal based their recommendations on the belief that "the present building was planned for a schoolhouse and is not well adapted to the Academy's needs."¹⁵

The Academy did not sell the building in 1913, but it did attempt to find money to improve and enlarge it. Such funds proved elusive, however, and the Academy found itself hard-pressed to come up with cash to merely pay bills for repairs, maintenance, and utilities as the world stumbled toward war.

The Academy rented space to other organizations to raise money, as Trelease expected it would. Among those who rented from the Academy were the Angle School of Orthodontia, the St. Louis Aviation Club, the International Correspondence School Fraternity, and the St. Louis Chemical Society. Its star tenant, however, was the Engineers' Club of St. Louis.

The Engineers Club's tenancy turned out to be a mixed blessing. Its association with the Academy as a tenant provided benefits and created problems. On one hand, the Club provided much-needed capital. On the other hand, it made demands that tried the patience of its landlord. For example, the club insisted that the Academy wallpaper its rooms or at least share the cost. The engineers also changed the wiring in the library "in a way to endanger the building", and they pestered the Academy for permission to erect a large electric sign with the name of their Club on it above the main entrance to the building.¹⁶

Like a good landlord, the Academy tried to accommodate the Engineers' Club and all its tenants. This was quite an administrative task, especially when one remembers that the Academy's council consisted of the unpaid elected officers.

The problems and expense of owning and maintaining a building helped bring the Academy to the crisis it faced after 1915. Nevertheless, these problems might have been solved if the community had given the struggling organization more support—if, for example, the Academy could have sustained and increased its membership. Why did the Academy's membership erode? Part of the answer, of course, had to do with the disruptive effects of the war raging in Europe. Other parts of the answer, however, had their roots in changes both in society and in science in America in the early twentieth century.

The Academy thrived in the beginning because of its unique position on the frontier. It was held together by a tightly knit elite comprised of amateur and professional scientists as well as accomplished and influential dilettantes. The former group, steeped in the traditions of European science societies, was intensely interested in science as an intellectual activity. The latter saw science as an uplifting discipline—they viewed joining the Academy as a way to distance themselves from the grubbiness of the frontier and, later, from the concrete forces of the American industrial revolution. Historian Daniel J. Kelves has written eloquently on the disdain the "cultivated" affected for industrialization and on how they turned to science as a way to reach higher cultural ground. In his book **The Physicists**, Kelves wrote:

To applaud science was to set oneself apart socially in a country so exuberant over mere gadgets and machinery. To discuss it was to mark oneself as a cultivated man. Patrician and landed gentry, profes-

sionals and mercantile businessmen—most of the patrons of science liked to be called cultivated; a description of pleasingly lofty connotations, it signified their sense of distance from a country they found downright philistine. . . .¹⁷

In the nineteenth century, the Academy functioned like a private club supported by a few learned and “cultivated” members. By 1893, the organization had transformed into a more populist one. It still endeared itself to amateur and professional scientists and to the cream of society, but in addition it attracted educated members of the middle class who also wished to be associated with the lofty notions of science.

At the turn of the century, the Academy still enjoyed the support of this diverse range of constituents. But much of this support quickly evaporated. The reforms the Academy instituted in the 1890s—democratizing the voting process and popularizing meetings—had a levelling effect that worked for a brief period. In those expansion years the Academy worked to become all things to all people, which forced it to balance the scholarly activity of publishing with public programs that alternated from popular to “uplifting” to technical. Despite this juggling act the organization found it increasingly difficult to attract and hold new members.

Younger scientists and engineers favored specialized professional organizations, such as the American Physical Society and the American Society of Mechanical Engineers, over the discursive Academy and other organizations that served as common clearing houses of scientific thought. Popular support for the Academy declined because the middle class, and often the elite, moved away from the “higher” abstractions of science toward a preoccupation with the gritty realities of social reform. For them, science went out of style in the Progressive Era.

The Academy tried to adapt when it became apparent that its appeal was flagging. It turned reform-minded—supporting a bill that limited the diversion of water from Niagara Falls.¹⁸ At the same time, the Academy courted engineers and professional scientists by offering more lectures on highly technical subjects and by making other overtures in attempts to lure them back into the fold.¹⁸ Unfortunately, these attempts failed and membership plummeted. However, enough amateur scientists and “old school” professionals remained active through the trying times of war to carry on into the third decade of the century.

Part V. 1918-1941: Years Of Retrenchment, Reorganization And Revitalization

The years between the world wars were critical ones for the Academy. The members who remained active from 1918 until 1929 struggled to keep their organization afloat. Ironically, the Great Depression ushered in a period of reorganization and revitalization that carried through those lean years up to the beginning of World War II.

The Roaring Twenties, that decade of impetuous abandon for most of America, was a period of conservative retrenchment for the Academy—a time to cut down on expenses and activities. After the Academy decided to vacate the building on Olive Street, it acted swiftly to reduce expenditures by having the Engineers' Club, which wanted to stay, assume the costs of janitor service, heat, lighting, and other building maintenance expenses.

In another economy measure, the Academy made arrangements with the St. Louis Library to house its books and periodicals. It also made provisions to store its museum collections with the Washington University Department of Geology, the School of Medicine of Washington University, and the Missouri Historical Society.

When the Engineers' Club moved out of the Olive Street building after a few years, the Academy gave a lease to the Theosophical Society, which took over the maintenance costs of the structure and paid a rental of \$500. This arrangement was terminated in 1928, and other tenants took over the next year.

The Academy had intended to sell the Olive Street building. However in 1925, after consulting with several real estate brokers, it decided to keep the property since it seemed likely that the value of the land, if not the building, would escalate.¹

After the Academy put its policy of economy into effect in 1918, the organization's financial situation began gradually to stabilize. By 1922, the association's fiscal state had improved to the point where it could reduce the annual dues from six to three dollars in the hope of attracting new members. Few new members joined, though, and the Academy's activities remained curtailed.

The Academy's regular meetings were eliminated after World War I. George T. Moore, Director of the Missouri Botanical Garden, who served as Academy President from 1918 until 1928, explained why the meetings were suspended. He wrote:

Conditions in the scientific world have changed rapidly and the increase

in the number of special societies has resulted in the elimination of what was formerly one of the chief functions of the Academy of Science. In spite of this fact the old Council tried a number of different schemes calculated to arouse interest in the meetings and it was only after the failure of all of these that a definite policy of abandoning the regular meeting was decided upon. Money was spent to bring speakers here from out of town and different types of programs arranged, without success. The three lectures given by Professor Massart of the University of Brussels were miserably attended, although the widest publicity was given to them, and the faithful few who attended the meetings as a matter of duty were frequently humiliated by the handful of people who came to hear a speaker whom the Council had invited to appear as its guest.²

Although the Academy abandoned one traditional activity after 1918, it doggedly pursued another: between March 1920 and June 1928 it published eighteen papers in two volumes of the **Transactions**. These papers included: Leo Loeb, "Cancer, Its Course and Causes" (1922); R. Walter Mills, "Medical Fads and Fancies" (1924); and Phil Rau, "The Ecology of a Sheltered Clay Bank: A Study of Insect Sociology" (1926).³

One of the most significant papers that appeared in the **Transactions** in the years immediately following the war was "Ecological Studies of the Entomostraca of the St. Louis District."⁴ The author of this paper, Charles Henry Turner, was an outstanding scientist and respected member of the Academy of Science of St. Louis. When he died in 1923, the Academy published a special memorial issue of the **Transactions** in his honor. The memorial issue contained the text of an "appreciation" of Turner, read by Augustus G. Pohlman at a service given at Sumner High School; an essay on Turner's work by Phil Rau; a list of Turner's published papers; and three of Turner's unpublished works.⁵

Charles Henry Turner was born in Cincinnati in 1867. He earned B.S. and M.S. degrees from Cincinnati University in 1891 and 1892. In 1907 the University of Chicago conferred upon him the degree of Doctor of Philosophy, *magna cum laude*.

Turner held a number of teaching positions, including Chair of Biology, Clark University, 1892-1905; High School Principal, Cleveland, Tennessee, 1907-1908; and Teacher of Biology and Psychology, Sumner Teachers College, 1908 until his death. Although Turner was an excellent educator, he was best known among scientists for his research.

Turner published almost fifty papers during his lifetime on subjects in neurology, invertebrate ecology, and animal behavior. He also composed book reviews that appeared in **Psychology Bulletin** and **The Journal of Animal Behavior**. Many of Turner's significant contributions were in the field of insect behavior studies. He was the first to



*Charles
Henry
Turner*

describe a kind of insect orientation performance that came to be known—in France at least—as *Turner's circling*.

Turner's interests were not confined to scientific deliberation. He devoted much of his life to projects aimed at raising the standard of living for blacks. From personal experience, Turner knew full-well the problems faced by blacks in America, and especially by black scientists such as himself. His accomplishments were, therefore, all the more noteworthy. In his essay on Turner's scientific work, Phil Rau paid tribute to Turner's bravery and perseverance. Rau observed:

The handicaps under which Dr. Turner's work was accomplished were many, and honestly and bravely met. Only one of these [problems] was the limitations of a small salary, out of which he was compelled to purchase his own tools and library for research, since he did not enjoy the access to laboratories and institutions where equipment is supplied. And when at last one considers the quantity and quality of his scientific research work, accomplished under handicaps, and in addition to a full life of other activities and unusual efficiency in the classroom, one can only say — well done!⁶

Following his death, a school for handicapped black children was named in Turner's honor. Today, this is Turner Middle School, a public, integrated junior high school in St. Louis.

As a devoted entomologist, Charles Henry Turner no doubt supported the Academy's efforts to help establish a natural history museum in St. Louis. When the Academy stored its collections in 1918, several concerned members joined the St. Louis Natural History Association, and throughout the 1920s they and the Academy worked closely with this organization to establish another museum in the city.⁷

The Museum Association and the Academy proposed various schemes for the development of a museum, but without success. The most interesting plan was a proposal to obtain the old courthouse from the city. This plan, which was supported by members of the city government and by many influential civic leaders, was still being considered in 1929—the year a major reorganization of the Academy began.⁸

In January 1929, the Academy Council met to discuss the state of the organization. Attending the meeting were the newly elected president, Arthur C. Thacher, and the other new officers. The new Council was determined “to rehabilitate the Academy of Science.”⁹ Over the next five years these individuals and other hard-working members breathed life back into the Academy by reviving regular meetings; spearheading attempts to create a museum; analyzing and reorganizing the Academy's finances; taking stock of its collections; carrying out extensive membership drives; and forging strong bonds between the Academy and other local science groups and with state and national science organizations as well.

The Academy's meetings became very successful affairs when they were revived in the early 1930s. The meetings were planned to appeal to a large variety of people interested in science, and the best-attended meetings were organized in cooperation with other organizations such as the Washington University Association and the St. Louis Bird Club. In 1934 over 9500 people attended eighteen Academy meetings. The most popular meetings of that year included an illustrated lecture given by Laurence Gould entitled “With Byrd to the Bottom of the World”, a talk on cosmic radiation given by Robert A. Milliken; and a presentation called “Animal Close-ups” given by George P. Vierheller and Marlin Perkins of the St. Louis Zoo. Over 4000 people attended these three events alone.¹⁰

The Academy's efforts to establish a museum were not as fruitful as its meetings, but it did make important strides toward that goal. For example, it helped bring together the various organizations, such as the associations of the Museum of Natural History and the Museum of Science and Industry, interested in establishing a museum. In addition, the Academy made the formation of a new museum an institutional goal by changing part of Section 2, Article II, of its constitution. This statement, which originally read “[the Academy] shall . . . establish and

maintain a cabinet of objects," was rewritten as "[the Academy] will establish and maintain a museum."¹¹

The Academy's ties to those organizations interested in starting a new museum were strong, and it took little effort to make them stronger. Similarly, the Academy sought better relations with other science groups in the city, including the St. Louis Horticultural Society, the St. Louis Herpetological Society, and the St. Louis Bird Club. The Academy also affiliated itself with larger organizations such as the Missouri Academy of Science, which was established in 1934; the American Association for the Advancement of Science; and the Association of Academies of Science.¹²

The Academy strengthened ties to other organizations by extending membership to them. Other ways the Academy increased membership included direct-mail and personal solicitation.¹³ These membership schemes proved very successful. One year's growth illustrates the point: membership grew from 183 active members at the beginning of 1932 to almost 300 by January of the next year.

A larger membership meant more revenue from dues and donations, which of course was good news. The bad news was the inefficient way the Academy administered its finances. To remedy this, a finance committee was formed. The new committee promptly analyzed the organization's finances and subsequently introduced novel management procedures and investment strategies that led to a safer and more lucrative trust.¹⁴

The Academy also took stock of another important asset—its collections. In 1929 the whereabouts of some of the collections that had been removed from the Olive Street building ten years before was uncertain. This concerned the members, who began an inventory. An exhaustive list of the collections had been completed by 1932. Darling K. Greger, who compiled the inventory, made this observation about the collections:

It is fortunate for the Academy that the collections . . . are in safe hands and [that] their preservation is assured against the time when the Academy may acquire a permanent home and when they may go to form the nucleus for extensive collections of their various types.¹⁵

While the members kept busy reorganizing and revitalizing the organization in the early 1930s, the Academy's more routine activities went on as usual. The publication of the **Transactions** remained a vital part of what the Academy accomplished. Three volumes were printed between 1929 and 1934. Some examples of the scholarship contained in these volumes include Phil and Nellie Rau, "The Sex Attraction and Rhythmic Periodicity in Giant Saturnid Moths" (1929); Gayle B. Pickwell, "The Prairie Horned Lark" (1931); and C.E. and H.E. Burt,

“A Preliminary Check List of the Lizards of South America” (1931).¹⁶

Another routine activity that kept the Academy Council busy was the administration of the building on Olive Street. The building was occupied by a series of tenants and brought in some revenue, but it remained a source of consternation despite several attempts to make it a better asset.¹⁷

In 1931, the Academy celebrated its 75th anniversary. Academy members marked this occasion with a formal dinner at the Chase Hotel for 75 people. The guest of honor was Robert G. Aitkin, Director of the Lick Observatory.¹⁸

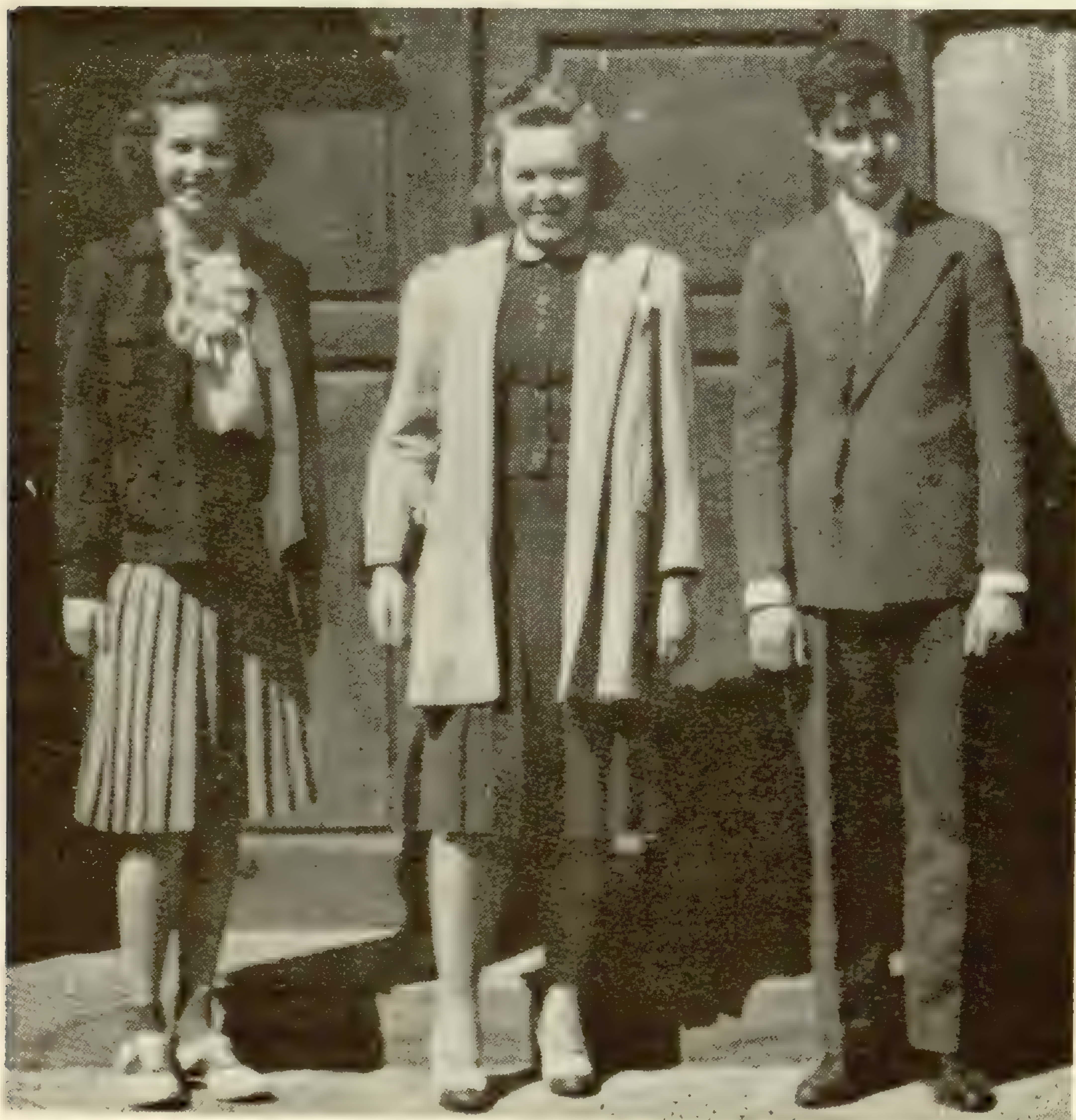
Three years after its 75th birthday party, Academy President Albert Kuntz eloquently summarized the accomplishments of the reorganized Academy in his report for 1934. He also made “a few suggestions regarding the possible extension of the activities of the Academy.” Specifically, Kuntz called for the production of a monthly or quarterly publication, outlined a scheme whereby specialized science organizations in St. Louis might be enticed to join the Academy, and recommended that the Academy should provide for junior membership.¹⁹ The organization put these suggestions into effect and engaged in other activities that Kuntz had not mentioned, causing a revitalization of the Academy between 1934 and 1941.

The publication that Kuntz called for took the form of an informational organ entitled **Bulletin of the Academy of Science of St. Louis**. The first issue appeared in January 1935. The issues that followed announced meeting times and programs, made officers’ reports and the Academy’s financial statements available to the membership, listed members’ names, featured biographical sketches of the Academy’s founding members, and presented summary reports submitted by the Academy’s various sections.²⁰

Article VIII of the Academy’s constitution had, since the nineteenth century, provided for the formation of special sections under the auspices of the Academy. These sections could be formed by members if they could show in a written application that the proposed section would “encourage and promote special investigation in any branch of science.”²¹ In the mid-1930s, the Academy made a concerted effort to increase the number of its sections both to more fully serve the interests of individuals and groups within the Academy and to attract new groups of members. The strategy worked well. A science teachers’ section and new sections for the study of astronomy, entomology, gemology, geology, mathematics, and the history of science were formed between 1935 and 1941.²²

The Academy organized another section, too. This section was devoted to serving the needs of young people interested in science. The

Academy Council authorized the Junior Academy of Science section in 1936, and it soon attracted a great number of students who formed



Junior Academy of Science Officers, 1939

chapters in many of St. Louis' schools. Junior Academy members engaged in a wide range of activities. They organized and took part in educational radio broadcasts, wrote papers on scientific subjects, conducted experiments, went on field trips, attended the Academy's regular meetings, prepared individual and chapter exhibits for display at their own annual meetings, and produced their own newsletter.²³

In addition to encouraging budding scientists through the Junior Academy section, the Academy sponsored the work of professional scientists during the Great Depression. The most significant project undertaken with the Academy's help was a series of archaeological investigations carried out in the late 1930s and early 1940s under the direction of archaeologist Robert McCormick Adams. The Academy gave Adams administrative support and paid for necessary supplies. The

Works Project Administration provided the labor, the Missouri Resources Museum in Jefferson City acted as the project's official sponsor, and the Smithsonian Institution gave the project approval.

Adams' investigations, which included excavations of mounds, village sites, and rock shelters in Jefferson Country south of St. Louis, yielded a wealth of Amerindian artifacts and information about the past lives of native people in the Mississippi River Valley. The cultural materials Adams unearthed went to the Academy, the Missouri Resource Museum, and the Smithsonian Institution. The knowledge gained on the project was disseminated in various publications, the most important being an article by Adams that appeared in the Academy's **Transactions**.²⁴

The Academy published two volumes of the **Transactions** between 1935 and 1941. In addition to Adams' article, these two volumes contained ten other papers.²⁵ The Academy continued to exchange its publication for those of other academies and it constantly added to its list of exchange partners. In 1939, it reopened its library, which had for some years been stored and unavailable for public use.²⁶

The Academy continued to accept donations of specimens and artifacts.²⁷ Unlike the library, however, its museum collections remained in storage. The establishment of a museum remained an important goal for the members. They expressed their desire for a new museum time and again in articles in the Academy Bulletin and made several proposals for the erection of a science museum in the city. One of the members who so vigorously sustained the push for a museum was Robert James Terry, who served as Academy President from 1935 until 1937.

Robert James Terry was born in St. Louis in 1871. He earned his M.D. degree from the Missouri Medical College in 1895 and later studied at Edinburgh, Freiburg and Harvard. In 1901 he returned to St. Louis to occupy the Chair of Anatomy in the Medical Department at Washington University.

Terry was an active member of many science societies, including the American Association for the Advancement of Science, the American Association of Anatomists, the American Anthropological Association, the Anatomical Society of Great Britain, and the American Ornithological Union. He also belonged to the St. Louis Medical Society, the Missouri Historical Society, the St. Louis Anthropological Society, and the Naturalist Club of St. Louis. He authored numerous articles on human comparative anatomy, and he wrote a book entitled **An Introduction to Human Anatomy**.

Terry joined the Academy in 1896 and in subsequent years served as a curator and as librarian. He was an enthusiastic supporter of the St. Louis "museum movement," and he worked hard toward establishing

such an institution. Neither his plans for a new museum nor any of the others put forth during his administration were successful, however.²⁸

Although not as sensational as the creation of a museum would have been, the Academy did accomplish one task it considered important: in 1936 the members voted to change the constitution and by-laws. The new constitution resulted from a year-long study conducted by the Council and a special committee. The most significant change was the addition of an article calling for the formation of a Board of Trustees as part of the Academy's governing body. Members of the Board were chosen in 1937 and charged with handling the Academy's finances and property. With the formation of the Board of Trustees, the Academy felt confident that it had removed "the last obstacle towards acquiring a new home" and that its financial situation would be vastly improved.²⁹

One of the first Board members, Father James B. Macelwane, served as the Academy's president from 1937 until 1939. Macelwane was born in Ohio in 1883. After attending high school, he entered the Society of Jesus in 1903. Macelwane came to St. Louis in 1908 and received his undergraduate degree from St. Louis University two years later. He earned his M.S. in 1912 and after that taught physics at St. Louis University while at the same time studying theology. He was ordained to the Catholic priesthood in 1918.

In 1921 Macelwane entered the University of California at Berkeley and received his doctorate in physics, mathematics, and seismology two years later. After completing his doctoral program, Macelwane accepted the position of Assistant Professor of Geology at Berkeley and served as director of the seismographic stations at Berkeley and Mount Hamilton.

Macelwane returned to St. Louis in 1925 as Professor of Geophysics and Director of the new Department of Geophysics, which he organized, at St. Louis University.

At various times Macelwane served as director of the Central Station of the Jesuit Seismological Association and also as president of that organization. He was twice elected to the presidency of the Seismological Society of America. Furthermore, he was active in American Association for the Advancement of Science and the American Geophysical Union and frequently served as an officer of various other prominent professional science societies.³⁰

Father Macelwane's successor to the Academy presidency was Arthur Henry Timmerman, who was elected in 1939. Timmerman was an engineer who received his education at Cornell University. He taught physics at Washington University in St. Louis in 1893. After a year there, Timmerman moved to Rolla, Missouri, to teach physics and electrical engineering at the School of Mines. He came back to St. Louis



Stratford Lee Morton

in 1899 to work for the Wagner Electrical Organization. Timmerman was active in numerous civic and professional organizations. He joined the Academy of Science in 1893.³¹

Stratford Lee Morton was elected Chairman of the Academy's recently formed Board of Trustees in the same year that Arthur Timmerman became president. Morton was born in Dixon, Illinois, in 1888. He came to St. Louis with his family when he was 14. Five years later he began a career as a life insurance agent with the Connecticut Mutual Life Insurance Company. He was extremely successful, becoming the company's first million-dollar producer. At the age of 24 the company named him General Agent—the youngest in the company's history.

Morton, in addition to being a hard-driving salesman, was an avid collector of Americana. He also collected minerals, sea shells, and fossils. He was an energetic civic leader as well. Other organizations with which he was associated during his lifetime included the Municipal Opera, the Missouri Botanical Garden, the City Art Museum, and the Missouri Historical Society.

Morton's involvement with the Academy of Science of St. Louis would endure 30 years, until his death in 1970. For many of those years, he worked to give St. Louis residents a science museum to be proud of—plans for a museum and ways to win support and find funding for such an institution were uppermost in Morton's mind in the 1940s and 1950s, and he and other members of the Academy toiled diligently to reach this goal.³²

Part VI. The Search For A New “Permanent” Home, 1941-1956

The Academy lost some of the momentum gained in the late 1930s after the outbreak of World War II. Nevertheless, it remained extremely active, under the circumstances, throughout the conflict. For example, the Academy published three lengthy articles despite the paper shortage.¹ The main activity, however, was the struggle to begin a science museum in St. Louis that would also serve as the Academy's home.

The effort to start a museum was concentrated in the Board of Trustees and the Council. During the first two years of the war several proposals were drawn up—including the possibility of using the ground floor of the old courthouse building, which by that time was controlled by the National Park Service. However, this and other plans never jelled.

In January 1943, the Board and the Council held a special meeting at #1 Portland Place, in what was called the Faust House. Chairman of the Board Stratford Lee Morton explained that the meeting was being held in the house since there was a possibility that the structure might be obtained by the Academy.²

The Faust House, an elegant 3-story mansion inspired by the Villa Borghese in Rome, was built by Mr. and Mrs. Edward A. Faust in 1911. They lived there until their deaths in 1936. Their son, Leicester Busch Faust, occupied the home from 1936 until 1938.

When Leicester Faust moved from #1 Portland Place, he offered the property to St. Louis for use as a mayor's residence. The city declined it, however, on the grounds that it would be too costly to maintain. The Academy approached Faust about possibly acquiring the building after the city turned it down, but these negotiations also fell through.

In 1943, The Academy learned that the Faust heirs had decided to donate the residence to some worthy organization. When this came to light, Stratford Lee Morton contacted Leicester Faust and Faust promptly offered the house to the Academy with “no strings attached.” The building was in a residential area, however, which was an obstacle. Faust informed Morton that the residents of Portland Place had to consent to the Academy's tenancy of the building. Faust wrote:

We have discussed with you the current existing restrictions upon the use of the property in Portland Place and the necessity of either the modification of such restrictions by the residents of that Place or their consent to the proposed use.³

Unfortunately, when the residents of Portland Place met to discuss the proposed use of the Faust House as a museum, some of them objected on the grounds that the Academy appeared financially unstable.

And since the transfer of the property had to be approved by 100% of the owners, the plan stalled. Nevertheless, the Academy did not forsake hope that it might acquire the Faust House. Instead, it tried to convince the property owners that it was financially sound and that a museum at Portland Place would be an asset. These efforts, which lasted throughout 1943, included the publication of a detailed description of the Academy and the election of an influential Portland Place property owner to the Academy's Board. All of the other owners could not be persuaded, however, and the Faust House eventually faded from the list of possible sites for a new permanent home.

Another possibility cropped up in 1944 when Palmer B. Baumes, St. Louis Park Commissioner, notified the Academy that the Laclede Police Station in Forest Park would be rehabilitated. Baumes suggested the Academy might consider trying to acquire the building. After some deliberation, the Academy abandoned this possibility because of the limitations of the old police station.⁴

The Academy appointed a special committee in 1944 to study and outline some options for the immediate post-war construction of a science museum in St. Louis. This committee drafted a detailed plan that called for the development of a science center to include a planetarium, an aquarium, a museum of natural history, and a museum of science and industry. One committee member even suggested a possible design for the science center—a huge structure in the shape of a globe. The committee also recommended that steps should be taken to have the science center included as an item on a bond issue to secure funding.⁵

This plan met with enthusiasm and optimism. Unfortunately, the construction of such an institution appeared unfeasible in the 1940s. The Academy, however, remained determined to create a new museum.

In August 1944 Stratford Lee Morton announced at a meeting that Joseph Desloge, President of the Academy, had located a residence at 4642 Lindell Boulevard that would be satisfactory for use by the Academy as a headquarters and small museum. The price of the building was \$16,500. President Desloge was willing to donate \$8,000 and the balance could be had by selling the Academy's Olive Street building.⁶ The members agreed that this purchase seemed the proper course, and the Academy sold the Olive Street property and bought the building on Lindell Boulevard.

The Academy lost no time in setting up a museum in the Lindell building. It formed a new committee to plan it and appointed curators to develop specific exhibit topics. The curators were Harold A. Bulger, anthropology and archaeology; Edward P. Meiners, invertebrates; Carl Miller, geology and paleontology; John J. O'Fallon, aeronautics; and Max Schwartz, birds and mammals.

The curators brought the collections out of storage and oversaw the acquisition of new ones, including the Whelpley Collection of Indian artifacts, the Hurter Bird Collection, a valuable collection of marine shells, an extensive gem stone collection, and three important collections of butterflies and moths.⁷

From 1945 to 1956, St. Louis residents had the opportunity to see some of the Academy's collections, both old and new, in exhibits at the Lindell building. The exhibits included an Indian textile display, an "industrial room," an exhibit entitled "Indian and Stone Age Man in America," and an exhibit on the history of aviation.⁸

In 1946 the Academy named Donald P. Lowry Director of the Museum. Lowry, formerly a curator at the museum of the Chicago Academy of Science, had primary responsibility for development of exhibits. He resigned in 1947, however, and Richard C. Froescher was chosen to take his place. But Froescher also left after a year. For some time afterward, the museum had no director, and the curators entirely supervised the development of exhibits.⁹

Like the exhibits at the museum, the Academy's publications featured a wide variety of topics. For example, the organization published both Arthur L. Hughes' "Nuclear Energy and the Hydrogen Bomb", an explanation of nuclear physics; and August P. Beilman's "What Tree Shall I Plant?"—a list of the kinds of trees that grow best in Missouri.¹⁰

In addition to publishing, the Academy conducted a lively lecture program. One year's offerings included talks on viruses, the natural history of ferns, the history of fabrics, the Dead Sea Scrolls, the effects of radiation, and technical developments in the glass industry.¹¹

The lectures often attracted fair-sized audiences. Nevertheless, many members were not entirely happy with the programs—they felt that in order to draw larger numbers of people, the organization was forced to present subjects of popular interest lacking real content. As one member put it, this led "to neglect of fields that are of great scientific significance."¹²

This concern and others like it prompted changes in the Academy during the years it occupied the Lindell building. For instance, the Academy once again changed its constitution and by-laws in ways that altered how it governed itself. Specifically, in 1950 the Academy changed the administrative body from the old Council to a Board of Directors. Another change came in 1956 when the organization elected Mrs. Elmer L. McCaddon to the Board. She was the first woman to serve on the administrative body in more than 50 years. Mrs. McCaddon organized the Women's Division of the Academy, which became very active.¹³

Another part of the Academy, the Junior Academy, remained busy, too. Junior Academy members continued to take prizes for their pro-

jects at science fairs that the Academy helped organize. The Academy promoted another kind of fair as well. In 1947 the organization initiated plans for a St. Louis World's Fair for 1953—the sesquicentennial year of the Louisiana Purchase. Under Academy leadership, an advisory committee consisting of 106 prominent civic leaders formed to study whether a St. Louis World's Fair was feasible.¹⁴ As it turned out, such a project proved inappropriate for the city in 1953. Although the project failed, the Academy's involvement demonstrated how deeply the organization felt its cultural responsibility.

Another activity the Academy undertook was the establishment of a "trailside museum" in Forest Park. The idea behind this project, which never developed, was to provide a way for people to learn more about nature than they could at the Academy's small museum on Lindell.¹⁵

The inadequacies of the Lindell building were apparent even when the Academy purchased the building. But at the time it seemed to be the best temporary solution until the construction of a truly world-class science museum of the kind proposed in 1944. Members kept the dream of such an institution alive in the 1950s. In 1952 the Academy made a study which resulted in a proposal for a St. Louis cultural center. The organization submitted its findings to the city's Board of Public Service, hoping to incorporate the cultural center in an upcoming bond issue.¹⁶

The Academy's report sketched an ambitious plan. The ideal cultural center would include a science museum which would have 150,000 square feet and cost \$4,500,000; a planetarium comparable to Chicago's Adler Planetarium at a cost of \$1,700,000; a symphony hall with seating for 2,500 that would cost \$2,000,000; a library with a 350,000 volume capacity and a price tag of \$1,340,000. With parking facilities and the cost of land, the total amounted to approximately \$10,500,000.¹⁷

The Academy's plan for a cultural center had the support of many St. Louis leaders, including the mayor. The Board of Public Service declined to add it to the bond agenda, however, and the plan seemed to wither. Nevertheless, the Academy retained the vision.¹⁸

Whatever dreams the Academy cherished, it had to face realities, and one of the harshest of these was the problems associated with the Lindell building. The property simply lacked enough space. For instance, it was too small to house both the Academy's collections and its library, which had to be kept at Washington University and, later, at the old courthouse.¹⁹

By 1954 the building had become too small to accommodate all of the Academy's exhibits. In that year the Mahlon B. Wallace, Jr. family donated a collection of mounted African animals. This group was en-

tirely too large to fit in the Lindell building, so the Academy was forced to seek another location in which to exhibit it. Eventually, the city allowed the animals to be shown in a portion of the Old World's Fair Pavilion in Forest Park, where they remained for several years.²⁰

Taking over the pavilion in Forest Park was a stop-gap measure. In 1956 the Academy building committee recommended a more permanent solution: sell the Lindell Building and use the proceeds to help finance the construction of a "small museum . . . which would contain an auditorium, and which would also double the present museum space."²¹ The Academy decided to take action on at least part of this recommendation, and in September, it sold the Lindell building for \$82,050.²²

With the sale of the Lindell building, the Academy was once again without a home, but not for long. Within two years the organization would put down its roots again—starting a new era of cultural activities and public service.

Part VII. 1957-1971: Oak Knoll Park, The Museum Of Science And Natural History, And The Zoo-Museum District

After it vacated the Lindell building, the Academy set up an office and met in the city's Railway Exchange Building. In May 1957, some of its collections could be seen in exhibits at the pavilion in Forest Park, Lindenwood College, the U.S. Naval Yard, and Parks Air College. During the summer, however, most of the collections were placed in storage at the International Shoe Company. Jules D. Campbell, an International Shoe Company executive and Academy Board member, supervised the move.¹

Later in the year Campbell received a telephone call from Roy Jordan, President of the Clayton Park Board. Jordan told Campbell that the City of Clayton was planning to purchase twenty-one acres and two large mansions, formerly the Charles Rice and Alvin Goldman residences, on the northwest corner of Clayton and Big Bend roads. Jordan informed Campbell that the city intended to use the property as park land but that it had no plans for the mansions. He suggested that the Academy might put the buildings to good use. Campbell immediately contacted Stratford Lee Morton and other members of the Board.

In the months that followed, Morton spearheaded an evaluation of the structures in what became known as Oak Knoll Park with an eye toward using one or both of the structures as a museum and headquarters. The buildings seemed suitable and the Academy began negotiating with the City of Clayton. Early in 1958 the Academy accepted a proposal the city put forth that enumerated several conditions placed on its occupancy of the buildings. These conditions stipulated that the Academy would assume the cost of maintaining the buildings and also carry fire and liability insurance. The arrangement seemed very agreeable. The rent was only \$1 per annum and Clayton agreed to take care of the grounds and to provide for public parking.²

Throughout the spring and summer of 1958, the Academy made plans for the houses in Oak Knoll. In October it hired Murl Deusing as Museum Director and Sally J. Orchard as Museum Curator.³ Both of these individuals were museum professionals. Deusing left a position at the Milwaukee Public Museum and Orchard moved to Oak Knoll from the Missouri Historical Society. Deusing and Orchard promptly set about moving and organizing the collections and developing educa-

tion programs; Deusing began a search for qualified people to run the programs and to fabricate the exhibits he outlined in a written exhibition plan.⁴

The Academy's new museum—christened the Museum of Science and Natural History—was scheduled to open on October 1, 1959. Deusing described the frenzied preparations for the opening in the first issue of **Your Museum**, the institution's newsletter. He wrote:

There is a pounding of hammers, the buzzing of drills, the slap of paint brushes . . . Plumbers, carpenters, electricians and painters are swarming over the place. Artists are bending over drawing boards laying out exhibit designs. Educators are sweating over the wording of labels. A taxidermist is struggling with the skeleton of a frigate bird. Volunteers are everywhere helping to get the job done.

There isn't much to see yet. A hole in the floor where a drinking fountain will stand, electrical conduits where an illuminated exhibit will stand, typewritten words on a page that will unfold a fascinating story in your museum halls of the future.⁵

In addition to Deusing's progress report, the first issue of **Your Museum** introduced St. Louis residents to the Museum's staff, described the first permanent exhibit, outlined the Education Department's programs, reported on the activities of the Women's Division of the Academy, and identified things to "watch for" in coming months. The staff, in addition to Director Deusing and Curator Orchard, consisted of Marguerite Yates, Office Manager; Donn Braizer, Education Supervisor; Veryl Collins, Teacher; William Groth, Teacher; John Maxfield, Exhibits Specialist; Charles Solt, Exhibit Designer; and James Redmond, Maintenance.

The museums' first five years were busy and fruitful. New exhibits opened regularly, education programs thrived, the collections grew, membership swelled, and the Museum staff kept active within the institution and the museum profession. The Academy oversaw this activity and worked hard to find the funds needed to pay for it all.

The museum's first—and for a time, only—permanent exhibit was entitled "The Story of Flight." It was installed at No. 2 Oak Knoll, formerly the Alvin Goldman residence. The exhibit consisted of three sections, beginning with "The Bird as a Flying Machine." The next, "Man Learns to Fly," featured aircraft models. The third section was very appropriate for the early years of the "space race." It was called "Reaching for the Moon" and gave visitors a chance to see a model space capsule, satellites, and a scale model of the lunar landscape.

In the first five years, the museum expanded its exhibit space to nine major galleries and several additional areas for temporary and traveling exhibits.⁶ The "stories" told in the permanent exhibit galleries dealt

with geology, biology, ecology, physiology, space travel, chemistry, communications, light, and electricity. Some of the exhibits, such as the Hall of Ecology and the Morton Hall of Lighting, featured items from the collections. Others, including the Hall of Man and the Hall of Communications, relied more on the model-making and artistic skills of the exhibit staff.

The education programs either in progress or being developed when the Museum's first exhibit opened in 1959 included a school visit program, a science career program, and Saturday "enrichment" classes in natural history, biology, earth science, and chemistry. In addition the Museum produced its own television show, "Operation Explore," which aired on the public television station. The program's "star" was Donn Brazier, Education Supervisor.

From 1959 to 1964, over 111,700 children took part in the school visit program. The other programs enjoyed similar popularity. One very successful program, "Outdoorland," started in 1964. Outdoorland introduced urban youngsters to Missouri natural history and helped them learn about conservation. The Education Department performed another laudable education service during the first five years: teachers and docents frequently visited hospitals to give lectures and to demonstrate artifacts to sick and handicapped children.

The Academy's collections grew in their new home. Major acquisitions included the Hall collection of 379 sets of eggs, the Schwartz collection of nocturnal moths, a collection of waterfowl decoys, a collection consisting of 340 prehistoric artifacts from Arabia, the Prokes collection of gems, a large collection of famous diamond replicas, the Kinner collection of Kachina dolls, a collection of exquisite miniatures donated by J. Lionberger Davis, the Roland Grimm collection of carved elephants, and the Morton collection of lamps and lighting apparatus.

In 1961 James G. Houser joined the staff, replacing Sally Orchard as Curator. Houser continued the task of cataloging collections, upgrading storage space, and developing exhibits.

Other staff changes took place as well. Director Murl Deusing resigned in 1961 to pursue a career in educational film production.⁷ Don Brazier took over as Acting Director and was soon made Director. Museum Teacher William Groth subsequently became the head of the Education Department.

Although its constituents were not members of the staff, one group of individuals played a vital role in the life of the museum. The Women's Division was reorganized in 1959 to coordinate volunteer and fundraising work. The Women's Division ran the Museum gift shop and organized such activities as "Coffee Break for Science" and film premieres to raise funds. Furthermore, the Women's Division planned

and provided labor for Museum receptions and parties and organized “family nights” for members. It also undertook membership drives, which proved extremely successful. In 1960 the Academy’s membership soared to over 1,000. Other volunteer groups worked with the Women’s Division in support of the Museum, including the Girl Scouts, the Junior League, the Greater St. Louis Shell Club, the Herb Society, and the Chi Omega and Gamma Phi Beta Sororities’ alumnae.

While the Academy welcomed the help it received from the community and enjoyed the progress of its new Museum, problems remained. One issue that continued to plague the organization was what to do with the Academy’s library materials, which consisted of over 70,000 pieces.⁸ When the Academy sold the Lindell building in 1956, the library went into storage at St. Louis University’s Pope Pius Library. Three years later, when the Academy obtained the houses in Oak Knoll, the university informed the Academy that it wished to place the books and periodicals on its shelves. But it would do so only if the Academy gave it sole title to the collection.

The issue of giving the library to St. Louis University was an emotional one. Some members totally rejected the idea of parting with a dominant symbol of the Academy’s 103-year-old history, while others were willing to consider doing so under certain conditions.⁹ In the end, these conditions were agreed to by the university, and in 1961 the library became the property of the Pope Pius XII Library.

The ostensible reason the Academy gave for the donation was that the materials would be accessible to the public at the university’s library. Other important considerations, however, included the lack of space for books at Oak Knoll Park and the university’s willingness to re-bind the books and make other costly repairs.¹⁰

Although it gave up its library in 1961, the Academy continued collecting the publications of other science societies. However, it ceased the regular publication of the **Transactions**.¹¹ There appeared to be several good reasons for this, but the main one was that the organization simply needed all the money it could find to run the Museum of Science and Natural History.

All of the Museum’s operations and programs—from building maintenance to polished exhibits—required significant sums. In the 1960s these requirements were met by a variety of sources, including gifts from corporations, organizations and individuals; grants from foundations; proceeds from membership dues and fund-raising events; and money raised when the Academy joined a coalition for the promotion of cultural activities in the St. Louis area.

In the first five years, cash donations to the Museum of Science and Natural History came from various sources in support of different

activities. For example, in 1959 and 1960, the Stix, Baer and Fuller Company gave a total of \$30,000 to help pay for the school visit program and for "Operation Explore." In 1961 Famous Barr, Morton May, and the Beaumont Foundation gave \$40,000 for an exhibit. The next year General Motors gave \$2,000 to the museum. Among the donations for 1963 was a \$1,000 gift from the St. Louis Rotary Club, which helped pay for visits made by museum staff and volunteers to hospitals. In the following year the St. Louis Dental Society presented the Academy with \$2,000 for an exhibit on teeth.¹²

Grants from foundations made up another major percentage of the Academy's revenues. The most significant grants came from the Albert P. Greensfelder Trust, which awarded \$45,000 in 1959 to help found the museum and \$55,000 in 1962 to maintain it.¹³ The next year the Beaumont Foundation awarded a \$25,000 challenge grant which Stratford Lee Morton matched. The money was used to pay for the "Hall of Evolution," which was dedicated to the memory of Morton's son who died in World War II. One of the Academy's most consistent sources of grant money was the National Science Foundation, which awarded major grants to the Academy in support of science education throughout the 1960s.

Additional money came to the Museum from a small admission charge, membership dues, gift shop sales, fund-raising events, and from yearly fund-raising campaigns coordinated by the Greater St. Louis Area Arts Council.¹⁴ The Arts Council was formed in 1963 to promote cultural activities in St. Louis. The Council consisted of twenty-eight members in three categories, but only ten institutions were Fund Members. Each year after 1963 the Council conducted a massive fund-raising drive to provide the Fund Members with money for operating expenses. By joining the Arts Council as a Fund Member in 1963, the Museum of Science and Natural History became eligible for \$55,200 for its operating budget. Funds for exhibits, acquisitions, and equipment still had to be raised through other means, however.¹⁵

The Academy seemed destined to meet the financial challenges of running its museum. For the first two years it managed to come in under budget. In the next three, however, it ran a deficit of \$34,000.¹⁶ The Academy's financial situation was summarized in 1964 by Donn Brazier, who explained that the coming year would be "a sustaining rather than an expanding one because of our uncertain financial position."¹⁷

The Academy and its Museum remained on a shaky financial ground for the rest of the decade. Nevertheless, the staff persevered in developing new exhibits, the collections grew, education programs prospered, and the Women's Division continued to actively support the Museum.



*Donn
Brazier*

The first new permanent exhibit to open after 1964 was the Hall of Evolution. Conceived, designed, and fabricated by Museum staff, this exhibit opened in 1966 after over two years of planning. It featured fossils, specimens, reproductions, and models in a format that presented a synopsis of the process of evolution. Other permanent exhibits that opened or were developed before 1971 included an outdoor diorama with steel-and-fiberglass life-sized models of *Tyrannosaurus rex* and *Triceratops*; the Davis Hall of Miniatures, which featured pieces from the J. Lionberger Davis Collection; and the Egyptian Hall, which gave Museum visitors a chance to study ancient artifacts, a reproduction of an Egyptian tomb interior, and an Eighteenth Dynasty mummy borrowed from Washington University.

In addition to these permanent exhibits, the Museum developed or contracted for numerous temporary and traveling exhibits such as "X-rays of Sea Shells," "Handicrafts of the Southwest Indians," "Our Polluted Environment," and "Moon Rocks."¹⁸ The Museum also developed small exhibits for display in bank lobbies and shopping centers.

Artifacts and specimens from the collections were used in both temporary and permanent exhibits and new acquisitions were constantly being sought and accepted. Among these were a large collection of

antique radios; a casting of the bust "Victory" by Auguste Saint-Gaudens; a 22-1/2 foot Columbian dugout canoe; and numerous fossil, geological, and zoological specimens, including a gorilla skeleton from the St. Louis Zoo, which was used in the Hall of Evolution.¹⁹

Exhibits and collections were an integral part of the Education Department's programs, including the school visit program, enrichment classes, science career program, and visits to hospitals. At the end of the decade and in 1970, several new programs were added, including a lapidary class and an informal summer variety program, which consisted of special displays, movies, and talks that focused on objects in the collections, crafts, and topics in science and nature. This special project was coordinated by Claudia Mink, Assistant Curator, and Cynthia McConnell of the Education Department. Both women were recent additions to the staff, which had grown marginally in the late 1960s but had remained fundamentally the same in terms of positions and the people who held them since 1964.

Another constant during this time was the support given to the Museum by the Women's Division, which sustained family night programs, gift bazaars, and the gift shop. After the life-sized dinosaur models came to Oak Knoll in 1969, the Women's Division started an event of truly colossal proportions. Gatherings called "Dance-O-Saurus" were held outdoors in the park where party-goers ate, danced, and socialized under the stars and the watchful gaze of *Tyrannosaurus rex* and *Triceratops*. Proceeds from the dance and dinner (in 1970 the cost per couple was \$35) went to support the museum.²⁰

Although the Academy considered Dance-O-Saurus a fund-raising success and older sources of income remained more or less reliable, supporting the Museum lingered and grew as a monolithic challenge. The fact that other St. Louis cultural and education institutions found themselves in similar financial straights seemed to offer little comfort. But it was this shared fiscal malady that spawned an apparent solution to the Academy's financial conundrums.

At a meeting of the Academy Board in March 1969, Howard F. Baer, President of the Zoological Board of Control, outlined his plan for a proposed cultural district, which he hoped might be presented to the voters of St. Louis City and County. This cultural district would include the Zoo, the Art Museum, and the Museum of Science and Natural History. Income for these institutions would come from a property tax levied on owners in the city and county.

After Baer's presentation, the Academy Board voted to support his plan and committed itself to the formidable task of establishing the cultural district, even though the formation of such a district would mean that the Academy would have to relinquish ownership of its museum.²¹

The first step in the campaign to create the district, which got underway in earnest in 1970, was to receive approval for an election from the state legislature. In May, legislation that would have allowed the voters to decide the issue in St. Louis was perfected by the representatives after long debate. The measure was later defeated by a narrow margin, however, leaving those in favor of the district downhearted.²² The defeat of what became known as the “cultural bill” did not stop the campaign, though, and an identical piece of legislation passed in a special session in June.²³

The bill sanctioned the creation of the district, set minimum tax rates, and provided for the voters to have the final say as to whether the district should take over the three institutions. If approved by voters, the district, now formally referred to as the “Metropolitan Zoo-Museum Tax District,” would be established with each of the three institutions as a separate subdistrict. The district would be headed by an eight-member board, and the tax rate would not exceed nine cents per \$100 of valuation.²⁴ The issue required only a simple majority to pass.

Later in 1970 advocates of the district mounted a petition drive in order to secure the signatures needed to put the question on the April 1971 ballot. Despite some opposition, the drive was a success and the proposed district became a distinct possibility.

Opposition to the proposed district came mostly from St. Louis County residents, who resented paying taxes in support of what they considered mainly “city” institutions. James T. Eagan, Mayor of the suburb of Florissant, formed an opposition committee comprised primarily of other county suburban mayors. Eagan summarized their stance on the district when he suggested that “. . . the answer to the problem [of support for the institutions] is not another taxing district, but the charging of admission to the facilities. Let those who benefit pay.”²⁵

Although vociferous, the number of people actively opposed to the creation of the district was relatively small; an opinion poll taken early in 1971 indicated a general favorable interest in the institutions and a willingness to support them through a tax. Nevertheless, those who wanted to see the proposition passed increased their efforts to persuade the voters as the election neared. They organized a speakers’ bureau and produced a film that helped explain the plight of the zoo and museums. In addition, they launched a gaily painted bus that traveled—with a live llama from the Zoo on board—to campuses, schools and shopping centers.²⁶ The supporters also paid for a media campaign, which included numerous newspaper advertisements.

Most of the newspapers were quite sympathetic. The area’s two most influential journals, the **Globe-Democrat** and the **Post-Dispatch**, both ran favorable editorials. They also printed articles indicating that

the institutions might be forced to curtail services, or even close, if voters rejected the district.²⁷

Support for the district came from politicians as well, including County Supervisor Lawrence K. Roos, Senators Stuart Symington and Thomas Eagleton, and the mayors of the cities of Clayton, Kirkwood, Ferguson, and University City.²⁸

With so much backing it appeared that the Zoo-Museum District was a certainty. And when the votes were counted in April, it became apparent that the issue had indeed won the overwhelming support of city voters. But it barely “squeaked through to victory” in St. Louis County. In fact, the Art Museum won with a county majority of fewer than 2,000 votes. Support for the Museum of Science and Natural History was much greater in the county, however. Jules D. Campbell, who ascended to the Academy presidency after Stratford Lee Morton’s death in 1970, suggested a reason for the Museum’s popularity in the county:

County voters were for the [Academy’s] museum because it is in the county and because it only asked for a tax limit of 1 cent per \$100 valuation, compared to 4 cents each for the Zoo and Art Museum.

The Academy had reason to rejoice after the establishment of the Zoo-Museum District. The effect of the vote was to more than double the Museum of Science and Natural History’s income.³⁰ However, the creation of the district also meant that the Academy had to give up the Museum, including staff, exhibits, and collections. Nevertheless, the Academy intended to remain active.

In June 1971, Academy president Jules D. Campbell met with the newly formed Museum of Science and Natural History Subdistrict’s Board of Commissioners. Campbell gave a brief talk on the history of the Academy and advised the Commissioners of the Academy’s intention to continue as a corporate body. He told them that the Academy would retain and add to its funds and legacies for programs and for a contemplated new building. In addition, he informed them that the organization would continue its tradition of meeting with other groups and that the Women’s Division of the Academy, along with the Academy’s Board, would operate as “Friends of the Museum.”³¹

The 1960s was a time of many changes for the Academy. The most important was the establishment of the Museum of Science and Natural History, which was more ambitious than any of the Academy’s other three museums. The care and feeding of its museum became the organization’s primary concern and other activities, such as publishing and maintaining a library, faded in importance. The Museum’s educational goals were very much in keeping with national science education objectives. This was the decade after Sputnik, when science education at all levels became a priority in the United States. And within this



Jules D. Campbell (cutting cake), 1969

national context, the Museum of Science and Natural History was a success as the number of young people it reached demonstrated.

Although the years between 1959 and 1971 witnessed some of the Academy's most fruitful and rewarding endeavors, they were also years of frustration and sadness. The frustration came from the organization's constant struggle to overcome its financial problems. The sadness resulted from the loss of many of its older members, including three

of its most productive workers and leaders—Harold A. Burger, Fred Hume, and Stratford Lee Morton.

Fred Hume was an outstanding member of the Academy. Hume had been both Chief Engineer and Board Member for the International Shoe Company. He supervised the remodelling of the Oak Knoll buildings for the Museum.

Harold Aten Bulger died in 1966 at the age of 74. He joined the Academy in 1930 and remained active until his death. A physician, Bulger received his M.D. from Harvard Medical School in 1920. He joined the faculty of Washington University five years later and spent the rest of his professional life there before retiring in 1955. During his tenure he was on the staff of Barnes Hospital; he also served as Director of Medical Services at Homer J. Phillips Hospital. He specialized in metabolic disorders.

Bulger had many other interests in addition to medicine, including natural history and the history of the American West. His preoccupation with the West found many outlets. For example, he became convinced that James White, whose story of passing through the Grand Canyon was discredited by John Wesley Powell, had been the first European-American to see that magnificent place. He researched the subject exhaustively and wrote several articles in which he defended White's claim.

Bulger's love of natural history was expressed in numerous ways. He was an active member of the rather select St. Louis Naturalist Club to which he often lectured on subjects such as "Barbs and Barbules of Bird Feathers." He usually illustrated his talks with striking photographs he shot himself.

During his lifetime Bulger served the Academy in several capacities, acting at various times as its librarian, a curator, and as a member of its program committee. Besides his activity in the Academy, he took part in many other professional and amateur science and historical groups such as the Astronomical Society, the Audubon Society, and the Historical Association of Greater St. Louis. Furthermore, Bulger founded the St. Louis Westerners, a group devoted to the study of Western history and lore.³²

Dr. Harold A. Bulger was an exceptionally intelligent and enthusiastic individual whose energy and interests knew no bounds; he was a "Renaissance Man" in the tradition of Academy founders George Engelmann and Friedreich Wislizenus.

Stratford Lee Morton had more in common with businessman Pierre Chouteau, perhaps, than he did with Engelmann or the other founders of the Academy. Like Chouteau, Morton was a successful entrepreneur and an avid collector. Morton shared with all the founders a deep-seated

commitment to the Academy, and in many ways exceeded those energetic scientific men of the nineteenth century. Morton's contributions of service, money, and collections in some ways outstripped even those of George Engelmann. For example, Morton served as president for twenty-one years whereas Engelmann held the position for eight.

Morton, an extremely successful and wealthy insurance executive, joined the Academy in 1939 and was elected president and Chairman of the Board seven years later. He held that position—with a four-year illness-related hiatus (1948-52)—until his death in 1970. One of Morton's projects was an unsuccessful attempt to obtain the Faust House for the Academy. Although the Faust project failed, Morton never gave up; he persisted in "planning and pushing to give St. Louis the kind of Science Museum he dreamed of, the kind of museum of which St. Louis could be proud."³³

It was Morton, more than any other individual, who steered the Academy on the course that led to the establishment of the Museum of Science and Natural History in Oak Knoll Park. Moreover, it was Morton who managed to raise a large percentage of the money that kept the Museum afloat in the 1960s.

When Stratford Lee Morton died in 1970 he was remembered as "a man of the present looking forward to a better future."³⁴ Ironically, he died a little more than a year before the creation of the Zoo-Museum Tax District—something Morton regarded as a very large and important part of a better future for the Museum he helped create. Although the Academy knew it had lost one of its greatest champions with the passing of Morton, the talented, dedicated members who succeeded him would lead the Academy into a new period of bolstering tradition and forging ahead in the 1970s and 1980s.

Part VIII. Bolstering Tradition And Forging Ahead, 1971-1988

After 1971 the Academy oversaw the transfer of the Museum of Science and Natural History to the St. Louis Metropolitan Zoo-Museum District, which took control in 1973. Although no longer officially responsible for the governance of the Museum, the Academy remained active in its affairs. However, it also undertook many projects unrelated to the Museum's operations and programs.

One long-standing tradition the Academy maintained after 1973 was the presentation of films and lectures. The films had compelling themes such as "Indians and deer" and "Indians and the river," and the lectures covered exciting subjects in science and were given by engaging and knowledgeable individuals, including anthropologist William White Howells, NASA science consultant Richard Underwood, geophysicist Otto W. Nuttli, and nature artist Roger Tory Peterson.¹ The Academy also paid for programs on public television and produced a videotape entitled "The Sun: In Our Power" for distribution to public schools in the St. Louis area.²

Other projects included the excavation of the only dinosaur fossils found in Missouri; research on the mastodon bone beds near Imperial, Missouri; and the development of programs for high school students at the Mark Twain Summer Institute in St. Louis. In 1986, the Academy sponsored a year-long survey of collections of natural history specimens in Missouri. The survey provided substantive, quantitative data on the location, supervision, holdings, and curation of collections that were published in a report compiled by James H. Hunt, Michael Arduser, John E. Averett, and Bruce Stinchcomb.

Although some of its projects were independent from the programs and operations of the Museum of Science and Natural History, the Academy continued to play a key role in the life of that institution. Each year income from its endowment was awarded for science projects such as distribution programs for bird seed and tree seedlings; a science career program; and the publication of a directory of St. Louis science and technical organizations and clubs and an issue of its *Transactions* that described the Whelpley Collection of Indian artifacts.³ In 1980, the Academy began paying 50% of the cost of publishing *Discovery*, the Museum's new quarterly magazine.

One of the most direct links between the Academy and the Museum after 1973 was the work done by the Friends of the Science Museum, formerly the Academy's Women's Division. Operating under the auspices of the Academy until 1985, this group ran the Museum's gift

shop, directed membership drives, sponsored field trips and tours, gave parties for the membership, coordinated docents, and oversaw fundraising events such as “Dance-O-Saurus.”⁴

In 1981 the Friends dedicated a 25-foot stainless steel sculpture in the memory of Marguerite D. Yates. The sculpture, christened “Primogenesis,” was installed in the center of a small pond located in the southeast corner of Oak Knoll Park.⁵ Marguerite Yates died in 1980 at the age of 66. She joined the Museum staff as a secretary to the director in 1959 and became an extremely valuable employee. She was named Administrative Assistant in 1962 and Assistant Director in 1975. The Museum paid tribute to Mrs. Yates’ more than twenty years of service by renaming its temporary exhibits space the Marguerite D. Yates Hall. At the time of her death, Mrs. Yates was secretary-treasurer to the Museum’s Board of Commissioners and served in a similar capacity for the Academy of Science.

Like Marguerite Yates, Academy president Jules Campbell and other Academy officers, such as Lee Schnure, served on the Academy’s Board and on the Museum’s Board of Commissioners. Some years, they worked as commissioners. In others, they served on the Advisory Committee. In either capacity, Academy leaders continued to help direct the activities of the Museum, including long-range planning.

By the mid-1970s, it was clear that the Museum had outgrown the buildings in Oak Knoll Park. Director Brazier noted that “every part of these houses has been utilized. We have storerooms full of items that there is no room to display.”⁶ Furthermore, it became ever more difficult, as the number of visitors rose, to accommodate them and their vehicles at Oak Knoll.

In 1975, following the determination that a major expansion at Oak Knoll was impractical, the Museum retained the services of a professional architectural firm to conduct a site selection survey for a new structure.⁷ The commissioners, with the aid of this firm, identified three broad areas: 1) the Riverfront-Downtown-Union Station area, 2) the Forest Park area, and 3) an area in St. Louis County. The second location was eventually deemed most suitable.⁸

Moving the Museum to Forest Park, the Commissioners reasoned, could mean a joining of the Museum with the city’s planetarium, which was experiencing severe financial difficulties. A St. Louis “science center” could thus be created. The Museum developed a plan to show what form this merger might take. The plan called for the construction of a 100,000-square-foot museum building adjacent to the existing planetarium structure. This museum building would be partially underground, and its location would, the planners contended, “enhance the architectural beauty of the planetarium without disturbing the natural

beauty of its surroundings.’’⁹

Throughout the late 1970s, the Museum pushed its expansion plan and the proposed move to Forest Park. The notion of another building in the Park met with considerable opposition, however, from environmentalists and others who believed that new construction there represented an untenable encroachment.¹⁰ In 1979, the Missouri Legislature banned the construction of the underground building.¹¹

In 1980 the Commissioners, staff, Friends of the Museum, and the Academy continued planning the expansion despite the setbacks of the previous years. A design concept was completed for a 100,000-square-foot facility at Oak Knoll Park—a facility comparable in size to what had been proposed for Forest Park in the 1970s. However, the construction cost estimate for a project of that size had more than doubled by 1980. This caused the planners to re-evaluate the expansion scheme. They decided to develop a phased program, starting on a smaller scale of 40,000 to 50,000 square feet with further growth to take place as a second phase at a later time.¹²

In June 1981 a great deal of the responsibility for planning the new science center came to Dwight S. Crandell, formerly of the Indianapolis Children’s Museum, who joined the Museum staff in the new position of Director of Development. Almost immediately, Crandell helped begin the development of a long-range plan for future facilities, concepts, programs, staff, finances, and exhibits.¹³

In the spring of the next year, Crandell reported that the Museum’s statement of purpose had been revised, that future staffing and space requirements had been detailed, and future exhibits outlined. Crandell also noted that although plans were underway, the site for the new science center had yet to be determined. Moreover, he informed the public that the Commissioners had endorsed a new sales tax to fund the Metropolitan Zoo-Museum Tax District. This concept was embodied in a proposal, jointly sponsored by St. Louis Mayor Vincent Schoemehl and County Executive Gene McNary, which called for the replacement of the property tax with a sales tax as the basis for funding the Museum’s operation.¹⁴

In August 1982, this proposal was defeated and alternate schemes for increasing funding for future operations were explored. Also in 1982, Director Donn Brazier retired and Dwight Crandell was named Executive Director of the Museum of Science and Natural History. That same year, the Academy Board approved the release to the museum of \$48,000 previously held in an escrow fund in the names of the Academy and the Museum. In return, the Museum Commissioners agreed to give the Academy office space in any future museum building.

The next year was an extremely busy and eventful one. The

Museum announced plans to merge with the McDonnell Planetarium. And, after much discussion, the Commissioners proposed to acquire property at 5050 Oakland Avenue across Highway 40 from the planetarium building in Forest Park. This property included the former headquarters building of the Falstaff Company, which would be transformed into the new St. Louis Science Center. The two facilities would be connected in a way to create, in the words of the planners, “a strong synergism.” Moreover, the marriage of the two would “improve attendance at both . . . allow for joint management, and . . . offer cooperative programs and projects.”¹⁵ Funding for the operations of this new science center came in 1983 when the people of the City and County of St. Louis voted an increase in support from 1 cent per \$100 to 4 cents per \$100 of assessed valuation of their property.

The Academy’s involvement in supporting the Museum of Science and Natural History’s plans and programs demonstrated the Academy’s continuing commitment to helping such institutions. In 1984 Dr. Peter Raven, Director of the Missouri Botanical Garden and an honorary member of the Academy Board, helped design an Academy-sponsored fellowship program. The goals of the “Founding Fellows” program are to serve as a binding force for science organizations in St. Louis; to recognize professional accomplishment; and to promote public interest and understanding of science and technology, especially as they relate to the public welfare.¹⁶

Also in 1984, the Museum of Science and Natural History adopted a new name—the “St. Louis Science Center.” The McDonnell Planetarium was acquired from the city, and the renovation and reopening of the planetarium building as the first phase of the expansion became a high priority. The buildings at Oak Knoll Park remained open, however.

In midsummer 1985, the planetarium building reopened as the new St. Louis Science Center featuring a renovated Star Theater, many participatory exhibits, and new education programs.

During the next two years, The Academy of Science supported several Science Center programs and activities, including a science teacher intern program and a chemistry demonstration show. It also subsidized a new permanent exhibit on earthquakes and a temporary exhibit on genetic engineering. These activities represented a partial, but substantial, manifestation of the roles the Academy outlined for itself in 1984.

In 1986 the first stage for the second phase of the Science Center expansion—the development of the rest of the institution on the designated expansion site at 5050 Oakland Avenue—was completed when that property was purchased. At the end of the year, the buildings at

Oak Knoll closed to the public.

Also in 1986, Dr. Dennis M. Wint was hired as President of the Science Center. He came to plan, develop, and coordinate future growth. Later in the year, the Commissioners approved Wint's master planning schedule and program. And in November 1987, the master planning process was completed. The master plan included a refined mission statement, goals and objectives, plans for programs and a new building, strategies for a capital campaign, and guidelines for the cultivation of current and new friends of the Science Center.¹⁷

The Academy of Science of St. Louis, as the oldest and most loyal friend of the re-christened institution, will have its office in the new Science Center building when it is completed in the early 1990s. From this new location, only a few miles from where the founders of the Academy held their first meeting in 1856, the Academy of Science of St. Louis will direct new projects and meet new challenges. In the new Science Center—which will house technologies and where scientific principles and theories will be interpreted the likes of which the founders never dreamed—the members of the Academy will go on in the tradition of George Engelmann, William Trelease, Charles Henry Turner, James B. Macelwane, Harold Bulger, and Stratford Lee Morton. Furthermore, they will forge ahead, making the path clearer for those who wish to embark on expeditions of discovery for the sake of enhancing human power and knowledge.

Part IX. Notes

Notes To Part I

1. Perhaps the most infamous duel fought on “Bloody Island” occurred in 1817, when Thomas Hart Benton killed Charles Lucas on the notorious sandbar. In 1831, another sensational duel took place on the island that resulted in the deaths of both participants—director of the St. Louis branch of the Bank of America, Thomas Biddle, and congressman, Spencer Pettis. St. Louis’ considerable reputation for violence was based on such duels, the frontier and riverboat mystique, and on the despicable “McIntosh affair.” Francis McIntosh was a free mulatto steamboat steward arrested for a minor offense in St. Louis in 1836. When McIntosh asked what would likely happen to him, he was told he would probably be hanged. Upon hearing this, McIntosh panicked and tried to escape, killing one man and wounding another. He was captured and placed in jail, but a mob took him, tied him to a tree on the corner of Tenth and Market streets and slowly roasted him to death. News of this horrendous act shocked the nation. See James Neal Primm, **Lion of the Valley: St. Louis** (Boulder, 1981), 181-188.

2. “Memorial of the Western Academy of Natural Sciences, at St. Louis,” 26 Congress, 1st Sess., **S. Doc.**, no. 71, 13 January 1840.

3. **Act of Incorporation, Constitution and By-Laws of the Western Academy of Natural Sciences** (St. Louis, 1837).

4. **Anzeiger des Westens**, 4 February, 1937.

5. After returning from the Northwest in 1805, William Clark settled in St. Louis as territorial governor and Indian agent. He assembled an impressive collection of natural history specimens and Indian artifacts he had collected on the Lewis and Clark expedition, augmenting it with later acquisitions. These items could be seen in a little museum Clark opened in rooms in his home. Just how much of Clark’s collection was given to the Western Academy is unknown. See Walter B. Hendrickson, “The Western Academy of Natural Sciences of St. Louis,” **Missouri Historical Society Bulletin** 16 (January, 1960): 126.

6. **Ibid.**

7. **Ibid.**: 127-128.

8. “Memorial of the Western Academy, at St. Louis.”

9. **Ibid.**

10. **Ibid.**

11. Walter B. Hendrickson, “The Western Academy of Natural Sciences of St. Louis”: 238.

12. Quoted in Walter B. Hendrickson, “Natural Science and Urban Culture in the Nineteenth Century Middle West,” **Transactions of the Academy of Science of St. Louis** (hereafter cited as “TAS”) 31 (1958): 128-129.

13. **Missouri Saturday News**, 10 February 1838.

14. Engelmann was the first person to point out that American grapes

were immune to the phylloxera that ravaged European vineyards, for example. He hoped to inspire German immigration to America through his extensive writings in a publication, entitled **Das Westland**, which was edited in St. Louis but printed in Heidelberg at Joseph Engelmann's publishing house. See, William G. Bek, "George Engelmann: Man of Science, Part I," **Missouri Historical Review** 23 (January, 1929): 172.

Notes To Part II

1. Minutes of Meeting, 8 February 1856, Academy of Science of St. Louis Manuscript Council Book (hereafter cited as "MCB") 1856-1872, 1.
2. **Ibid.**
3. Minutes of Meeting, 3 March 1856, MCB 1856-1872, 1.
4. For a good overview of the American tradition of natural history, see: George F. Frick, "The Anglo-American Natural History Circle In the Eighteenth Century," **Transactions of the Delaware Academy of Science** 6 (1975): 239-248.
5. "Constitution of the Academy of Science of St. Louis," The Archives of the Academy of Science of St. Louis, St. Louis Science Center (hereafter cited as "AAS").
6. **Ibid.**
7. "By-Laws," TAS 1 (1856-1860): 11-14.
8. See: Mary J. Klem, "The History of Science in St. Louis," TAS 23 (1914-1920): 100-101.
9. Frederick Starr, "The Academy of Science of St. Louis," **Appleton's Popular Science Monthly** (March, 1898): 10.
10. For a detailed discussion of Engelmann's role in the development of the Missouri Botanical Garden, see William B. Faherty, **Henry Shaw, His Life and Legacies** (Columbia, 1987).
11. Enno Sander, "George Engelmann," TAS 4 (1878-1886): 18.
12. Robert E. Schlueter, "Frederick Adolphus Wislizenus," **ISIS** 76 (February, 1938): 39.
13. A. Wislizenus, **Ein Ausflug nach den Felsen-Geibergen in Jahre 1839** (St. Louis, 1840).
14. Quoted in Mary J. Klem, "The History of Science in St. Louis": 103.
15. A. Wislizenus, **Memoir of a Tour To Northern Mexico In Connection With the Expedition Of Colonel Doniphan in 1846 and 1847** (Washington, 1848).
16. See, James Neal Primm, **Lion of the Valley: St. Louis**, 161-164.
17. **Ibid.**
18. See "Founders of the Academy of Science of St. Louis," AAS.
19. "Journal of Proceedings," TAS 1 (1856-1860).

20. **Ibid.**
21. C. Donald Deggendorf, **A Short History of the Academy of Science of St. Louis** (Bank of St. Louis: St. Louis, 1960), 6.
22. "Journal of Proceedings, January 12, 1857," TAS 1 (1856-1860):
33. Paul Heroult and Charles Martin Hall independently developed practical, relatively inexpensive processes for extracting aluminum from alumina in 1886.
23. William Trelease, "The Academy of Science of St. Louis: A Biography," **Popular Science Monthly** 63 (December, 1903): 117.
24. Minutes of Meeting, 4 August 1856, MCB 1856-1872, 13-14.
25. "Journal of Proceedings, January 11, 1858," TAS 1 and 2; "Minutes of Meetings," MCB 1856-1872, AAS.
26. "Journal of Proceedings, January 11, 1858," TAS 1 and 2.
27. "Journal of Proceedings, January 11, 1858," TAS 1 (1856-1860): 325.
28. See, Minutes of Meeting, 3 January 1870, MCB 1856-1872, 385-386; Trelease, "The Academy of Science of St. Louis": 124; Minutes of Meeting, 4 January, 1869, MCB 1856-1872, 364-372; "Journal of Proceedings, January 11, 1858," TAS 1 (1856-1860): 107; and Minutes of Meeting, 3 January 1881, MCB 1873-1885, 365.
29. George Engelmann, "Fall of Rain (Including Melted Snow) in St. Louis from 1839 to 1861," TAS 1 (1856-1860): 660-662; "Elevation of St. Louis Above the Gulf of Mexico," TAS 1 (1856-1860): 663-667; "Stage of the Mississippi River at St. Louis in 1861," TAS 1 (1856-1860): 80-86. The other articles mentioned can be seen in TAS 1 and 2.
30. Albert Koch, "Mastodon Remains in the State of Missouri," TAS 1 (1856-1860): 61-64. See also John Francis McDermott, "Dr. Koch's Wonderful Fossils," **Missouri Historical Society Bulletin** 4 (July, 1948): 233-256.
31. Koch: 61-62.
32. **Ibid.**: 62.
33. A. Wislizenus, "Was Man Contemporaneous With the Mastodon?" TAS 1 (1856-1860): 168-171.
34. "Journal of Proceedings, April 5, 1858," TAS 1 (1856-1860): 115-117.
35. Mastodons migrated widely over Eurasia during the Miocene and reached North America near the middle of the epoch via the Siberian-Alaskan land bridge. The Pleistocene species may have been exterminated by humans within the last several thousand years.
36. Holmes later became a strong believer in the theory of evolution. See D.K. Greger, "Nathaniel Holmes," **Academy of Science of St. Louis Bulletin** 1 (April, 1935): 28.
37. See, for example, Hiram A. Prout, "Description of New Species of **Bryozoa** from Texas and New Mexico," TAS 1 (1856-1860): 228-237.
38. C.C. Parry, "Ascent of Pike's Peak, July 1, 1861," TAS 2 (1861-1868): 120-125.
39. C.C. Parry, "Account of the Passage Through the Grand Canyon

of the Colorado of the West," TAS 2 (1861-1868): 499-503.

40. See, Harold A. Bulger, "First Man Through the Grand Canyon," Missouri Historical Society **Bulletin** 17 (July, 1961): 324; and William H. Goetzman, **Exploration and Empire: The Explorer and Scientist in the Winning of the West** (New York, 1966), 394-397.

41. G.C. Broadhead, "Missouri's Geological Surveys," TAS 4 (1878-1886): 611-624.

42. Minutes of Meeting, 10 January 1859, MCB 1856-1872, 109-110.

43. Minutes of Meeting, 6 January 1879, MCB 1873-1885, 319.

Notes To Part III

1. Minutes of Meeting, 3 January 1882, MCB, 1873-1885, 395.

2. Trelease, "The Academy of Science of St. Louis": 127.

3. "Constitution," TAS 13 (1903): xiii-xvii.

4. Trelease, "The Academy of Science of St. Louis": 127.

5. "Article 5 - Constitution," TAS 13 (1903): xiii-xvii.

6. Trelease: 127.

7. **Ibid.**: 126.

8. **Ibid.**

9. **Ibid.**: 128.

10. The Academy's constitution provided for the formation of special topical "sections." One section that was organized was the Archaeological Section, which conducted several digs in the Mississippi River Valley in the 1870s. The pottery they unearthed on these expeditions came to the Academy. For a description, see: W.B. Potter and Edward Evers, **Contributions to the Archaeology of Missouri by the Archaeology Section of the St. Louis Academy of Science: Part I, Pottery** (Salem, Mass., 1880).

11. Trelease: 125.

12. Daniel J. Kelves, **The Physicists: The History of a Scientific Community in Modern America** (New York, 1979), 26.

13. Hurter's birds were eventually turned over to Washington University. Most of the collection, however, is now housed at the St. Louis Science Center.

14. See Julius Hurter, "Catalog of Reptiles and Batrachians found in the Vicinity of St. Louis," TAS 6 (1892-1894): 251-262.

15. "Julius Hurter, Sr.," St. Louis Natural History Museum Association **Bulletin** 1 (November, 1918): 1-3.

16. Trelease: 128-129.

Notes To Part IV

1. Trelease, "The Academy of Science of St. Louis": 129.

2. "Celebration of 50th Anniversary, Record," TAS 16 (1906): xv-xcix.

3. "President's Report, Record," TAS 18 (1908-1909): lxiii-lxv. The

endowment fund stood at \$7,400 in 1909, and the Treasurer reported a surplus in the general fund of over \$200.

4. **Ibid.**

5. Minutes of Meeting #1067, 3 January 1916, Academy Meeting Book (hereafter cited as "AMB") 1909-1936, 318-322.

6. Minutes of Council Meeting #411, 15 January 1917, Council Book (hereafter cited as "CB") 1909-1933, 328-330.

7. Minutes of Council Meeting #400, 204-306; #408, 320; and #414, 336-414: CB 1909-1933.

8. The Academy's revenues for 1917 dropped to only \$1,529. Of that amount, only \$363 came from receipt of member's dues.

9. Minutes of Council Meeting #423, 23 February 1918, CB 1909-1933, 355-356.

10. See, "Record," TAS 13 (1904): 22.

11. "William Trelease," Members of the Academy of Science of St. Louis. Files, AAS.

12. Leonard W. Blake and James G. Houser, "The Whelpley Collection of Indian Artifacts," TAS 32 (1978): 1-2.

13. The curators of the Academy's museum worked to catalogue specimens and exhibit them in a way "that every visitor . . . may gain all the information the museum and library can afford." The library contained about 50,000 volumes in 1918. "Record," TAS 16 (1906): cxxix.

14. Trelease: 128-129.

15. Minutes of Council Meeting #346, 21 April 1913, CB 1909-1933, 285-266.

16. Minutes of Council Meeting #391, 3 January 1916, CB 1906-1933, 285-286.

17. Kelves, **The Physicists**, 17.

18. Minutes of Council Meeting #281, 1 March 1909, CB 1906-1933, 16.

19. See, Minutes of Council Meeting #400, 11 March 1916, CB 1909-1933, 304-306.

Notes to Part V

1. George T. Moore to Arthur Thacher, January 10 1929, "George T. Moore," Members of the Academy, AAS.

2. **Ibid.**

3. See TAS 24-25.

4. Charles Henry Turner, "Ecological Studies of the Entomostraca of the St. Louis District," TAS 24 (1920-1923): 16-25.

5. TAS 24 (1920-1923): 1-54.

6. **Ibid.**: 16.

7. See, A. G. Pohlman, "The St. Louis Natural History Association: Its Past, Present and Future," Natural History Museum Association **Bulletin** 1 (January, 1921): 53-57.

8. George T. Moore to Arthur Thacher, January 10 1929, "George T. Moore," Members of the Academy, AAS.
9. Minutes of Council Meeting, 17 January 1929, CB, 1909-1933, 387.
10. Minutes of Meeting, 20 February 1934, 453; 17 April 1934, 455; and 14 November 1934, 459: AMB 1909-1936.
11. Minutes of Council Meeting, 4 October 1934, CB 1933-1940, 542-543.
12. See, Minutes of Council Meeting, 18 February 1930, 407-408; and Minutes of Council Meeting, 8 April 1930, 414-415: CB 1909-1933.
13. H. A. Wheeler to A. F. Satterthwait, 5 April 1930, Box 6—Archives, Administration; 1902-1920s: Correspondence, 1930-1937, AAS.
14. Minutes of Council Meeting, 8 November 1933, CB 1933-1940, 499-501.
15. This inventory can be seen in: Minutes of Council Meeting, 12 October 1932, CB 1909-1933, 479a-479f.
16. TAS 27 was entirely devoted to Gayle A. Pickwell, "The Prairie Horned Lark," which was a very detailed study of the natural history of *Octocoris alpenis*. It was a very popular issue, and the Academy received many requests for it after it was published from amateurs and scholars alike.
17. In the 1930s the Olive Street building suffered some abuse and neglect, although the Academy did what it could to maintain it.
18. Minutes of Meeting, 12 January 1932, AMB 1909-1936, 399-406.
19. Minutes of Meeting, 10 January 1935, AMB 1909-1936, 436-437.
20. The **Bulletin** did not replace the **Transactions**, as it served another purpose. The **Bulletin** was designed to reach a more popular audience.
21. "Constitution of the Academy of Science of St. Louis," AAS.
22. See, Volumes I through VII of the **Bulletin**, AAS.
23. For a summary of the Junior Academy's activities for a typical year see, **Bulletin** IV (May, 1938): 29-32; and **Bulletin** IV (June, 1938): 35-37.
24. Robert McCormick Adams, "Archaeological Investigations In Jefferson County, Missouri: 1939-1940," TAS 30 (May, 1941): 151-221.
25. A good example is: Howard B. Graves, Jr., "The Pre-Cambrian Structure of Missouri," TAS 29 (January, 1938): 11-164.
26. The library was placed on shelves in a room at Washington University. The W.P.A. furnished a staff of six to arrange the publications.
27. See, **Bulletin** 1 (November, 1935): 52.
28. **Bulletin** 1 (February, 1935): 11.
29. **Bulletin** 3 (May, 1937): 17.
30. **Bulletin** 3 (April, 1937): 11-12.
31. **Bulletin** 6 (February, 1940): 3.
32. **Ibid.**: 4.

Notes To Part VI

1. George F. Brightman, "Frontier Agriculture In Northern Minnesota," TAS 31 (May, 1942): 5-25; M. F. Day, "Report on the Mosquitoes Collected

In St. Louis County During 1942," TAS 31 (September, 1943): 24-45; and I. T. Bode, et. al., "Science In Conservation During War Times," TAS 31 (September, 1943): 49-70.

2. Minutes of Meeting, 20 January 1943, Board of Trustees Meeting Book (hereafter "BTMB") May 20, 1937-May 12, 1945, 30-42.

3. *Ibid.*, 32.

4. Minutes of Meeting, 10 April, 1944, BTMB May 20, 1937-May 12, 1945, 65-66.

5. Minutes of Meeting, 8 May 1944, BTMB May 20, 1937-May 12, 1945, 72-78.

6. Minutes of Meeting, 5 August 1944, BTMB May 20, 1937-May 12, 1945, 79-83.

7. Edward P. Meiners, et. al., "For Human Knowledge and Power: A Centennial History of the Academy of Science of St. Louis," TAS 31 (1956): 17-18.

8. Minutes of Meeting, 31 June 1955, Board of Directors Meeting Book (hereafter "BDMB") September 21, 1954-n.d.

9. *Ibid.*, 17.

10. Other titles were: Winslow M. Walker and Robert McCormick Adams, "Excavations at the Matthews Site, New Madrid County, Missouri," TAS 31 (June, 1946): 74-120, and Walter B. Hendrickson, "Natural Science and Urban Culture In the Nineteenth Century Middle West," TAS 31 (1958): 232-248.

11. See, Minutes of Meeting, 31 June 1955, BDMB September 21, 1954-n.d., 643-645.

12. Edward P. Meiners, et. al., "For Human Knowledge and Power": 15.

13. *Ibid.*: 18.

14. St. Louis **Globe-Democrat**, 20 February 1947.

15. St. Louis **Globe-Democrat**, 6 October 1946.

16. Elzey M. Roberts to Frank J. McDevitt, 23 September 1952, in BDMB April 28, 1949-July 10, 1954, 345-347.

17. *Ibid.*

18. The Academy's hopes for a cultural center, funded by a bond issue, were bolstered in 1955 when a bond issue that raised one million dollars for a planetarium in Forest Park was successful.

19. See Arthur C. Compton to Chairman, Executive Committee, Academy of Science of St. Louis, 14 February 1951, in BDMB April 28, 1949-July 20, 1954, 117.

20. Board of Alderman Board Bill No. 488, 29 January 1954, in BDMB April 28, 1949-July 20, 1954, 475.

21. Minutes of Meeting, 17 March 1953, BDMB April 28, 1949-July 20, 1954, 402-403.

22. See, Minutes of Meeting, 16 October 1956, BDMB September 21, 1954-n.d., 744.

Notes To Part VII

1. Minutes of Meeting, 17 December 1957, BDMB September 21, 1954-n.d., 818.
2. See, C. W. O'Key to Fred Hume, 29 January 1958, BDMB September 21, 1954-n.d., 829.
3. Minutes of Meeting, 21 October 1958, BDMB September 21, 1954-n.d., 861.
4. See, "Proposed Exhibit Program For the Museum of Science and Natural History: Goldman House," BDMB September 21, 1954, n.d., 907-909.
5. Murl Deusing, "Deusing Talking," **Your Museum** (September, 1959): 3.
6. The permanent exhibit galleries included "Hall of Man," "Hall of Space," "Morton Hall of Lighting," "Hall of Ecology," "Man and Nature of Matter," "Teeth In Animals and Man," and a "Transparent Woman" theater. Some traveling and temporary exhibits shown at the museum were: "The Summary of Atomic Energy," "You and the Atom," "Atoms In Action," "The Beginnings of Flight," "The Chronology of Calculators," and "Photography From Five Years In Space."
7. See, "Verbatim Transcript," Minutes of Meeting, 22 February 1961, BDMB 1953-1976, Inc., n.p.
8. **Your Museum** (February, 1961): n.p.
9. Minutes of Meeting, 8 September 1959, BDMB 1953-1976, Inc., n.p.
10. In the late 1940s, Arthur Compton estimated that it would cost \$200,000 or more to put the library in good condition.
11. Since 1959, only two papers including this one have been published by the Academy.
12. Other donors were J. Lionberger Davis, Mr. and Mrs. Mahlon B. Wallace, Jr., and Joseph Desloge.
13. Albert P. Greensfelder died in 1955. During his lifetime he served as a member of the Academy's Board. The "Hall of Ecology" was named the "Albert P. Greensfelder Hall" in his honor.
14. For an example of the pleas the Academy made to its membership, see **Your Museum** (December, 1962).
15. Robert B. Smith to Stratford Lee Morton, 12 February 1964, in BDMB 1953-1976, Inc., n.p.
16. "What Does It Cost To Keep Your Museum Open?" **The First Five Years** (Bound with **Your Museum**, 1959-1966, AAS.)
17. Minutes of Meeting, 15 December 1964 BDMB, 1953-1976, Inc., n.p.
18. For a complete description of permanent and temporary exhibits, see James G. Houser, **Record of Exhibits In Oak Knoll Museum Buildings at Closing, December, 1986**. Xerox copy, AAS.
19. The bones were those of "Phil," a popular attraction at the St. Louis Zoo until his demise from natural causes.

20. St. Louis **Post-Dispatch**, 8 June 1969.
21. Minutes of Meeting, 11 March 1969, BDMB 1953-1976, Inc., n.p.
22. "Culture District Measure Defeated," St. Louis **Globe-Democrat**, 15 May 1970.
23. "Cultural Bill Approved By Senate," St. Louis **Post-Dispatch**, 11 June 1970.
24. In 1970 both the Zoo and the Art Museum were partially supported by a property tax from the city only.
25. **Florissant Reporter**, 11 February 1971.
26. "Zu-Mu Carries a Llama to Show District's Glory," St. Louis **West County Journal**, 10 March 1971.
27. "Lack of Funds May Close Museum of Natural History," St. Louis **Globe-Democrat**, 22 March 1971.
28. "Four mayors Support Zoo District," St. Louis **Globe-Democrat**, 24 March 1971; "Roos Supports Zoo, Museum Tax," St. Louis **Post-Dispatch**, 1 February 1971; and "Five Missourians In Congress Support Zoo-Museum District," St. Louis **Globe-Democrat**, 2 March 1971.
29. "Zoo, Museum Measure OKd for Tax District," St. Louis **Globe-Democrat**, 14 April 1971.
30. James G. Houser, "Science Center Traces Origins To 1856," **Discovery** 6 (Fall, 1986): 12-13.
31. See, Minutes of Meeting, 8 June 1971, BDMB, 1953-1975, Inc., n.p.
32. See, James G. Houser, "The Bulger Acquisition," **Discovery** 4 (Summer, 1984): 4-6.
33. See, "Stratford Lee Morton," Members, AAS.
34. **Ibid.**

Notes To Part VIII

1. For a description of Roger Tory Peterson's show, see: Lois Miklas, "Nature Artists: A Part of the American Tradition," **Discovery** 1, (Spring, 1981): 4-6.
2. This film was produced for the Academy by Double Helix Corporation with technical assistance from Academy members Janey Symington and J. Brian Berry.
3. Leonard W. Blake and James G. Houser, "The Whelpley Collection of Indian Artifacts," TAS 32 (1978).
4. See, Jules D. Campbell and Susan S. Schepman, "The Academy of Science of St. Louis, 1856-1982," unpublished manuscript, Box 10, Administration and Histories, AAS.
5. "Solar-Powered Sculpture Commissioned By Friends," **Discovery** 1 (Fall, 1981): 12.
6. "Overcrowding Prompts Science Museum to Seek New Location," St. Louis **West County Journal**, 23 January 1976.
7. The firm was Hellmuth, Obata and Kassabaum, Inc.

8. St. Louis Museum of Science and Natural History, "A Community Plan For a New Science Center Serving the Children, Youth and Adults of St. Louis City and County," (1975): 9.
9. **Ibid.**
10. See, "Great Debate — Trees or Bricks?" St. Louis **Globe-Democrat**, 14 June 1979.
11. "Science Museum tax Vote Advanced; Amendment Bars Forest Park Site," St. Louis **Post-Dispatch**, 31 May 1979.
12. "Report of the President and Director," Museum of Science and Natural History **Annual Report: 1980**. AAS.
13. See, "Director of Development Appointed for Science Museum Expansion Plan," **Discovery** 1 (Summer, 1981): 10.
14. Dwight Crandell, "The Museum Looks Forward," **Discovery** 2 (Spring, 1982): 11.
15. "The St. Louis Science Center," **Discovery** 3 (Spring, 1983): 8.
16. Minutes of Meeting, 18 June 1984, Board of Trustees Meeting Minutes 1980-1986. AAS.
17. Dennis M. Wint, "Report of the President," St. Louis Science Center **Annual Report: 1986**: 3. AAS.

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